

20020724.qrp v02_n626.qrl.20020724

Date: Wed, 24 Jul 2002 19:03:13 EDT
From: qrp-l@Lehigh.EDU
To: "Low Power Amateur Radio Discussion" <qrp-l@Lehigh.EDU>
Subject: QRP-L digest 2626

QRP-L Digest 2626

Topics covered in this issue include:

- 1) [130508] Re: The tuner character, WHEN ADJUSTED
by "Stuart Rohre" <rohre@arlut.utexas.edu>
- 2) [130509] Four State QRP Group Meeting Report
by "David Bixler" <qrp@netins.net>
- 3) [130510] 40M QRP from Durango Co. Trail
by "Randy Shake" <rshake@cablenet-va.com>
- 4) [130511] Re: [azqrp] Tuthill campground is open
by Bruce Grubbs <mail@brucegrubbs.com>
- 5) [130512] RE: ARRL Section News
by Nick Kennedy <nkennedy@tcainternet.com>
- 6) [130513] Re: A little story...or QRP fun!
by Bruce Rattray <rattray@gpfn.sk.ca>
- 7) [130514] WARM it up!
by Chuck Adams <k7qo@earthlink.net>
- 8) [130515] Re: A little story...or QRP fun!
by "Trevor Jacobs" <kg6cyn@earthlink.net>
- 9) [130516] books
by "carl seyersdahl" <carlseye@tampabay.rr.com>
- 10) [130517] MSP430 DIL module
by "Leon Heller" <leon_heller@hotmail.com>
- 11) [130518] Re: MSP430 DIL module
by "Leon Heller" <leon_heller@hotmail.com>
- 12) [130519] Re: The tuner character, WHEN ADJUSTED
by "Karl F. Larsen" <k5di@zianet.com>
- 13) [130520] RE: MSP430 DIL module
by Nick Kennedy <nkennedy@tcainternet.com>
- 14) [130521] Old Transmitter ?????
by "Mike Standbridge" <ve7mst@goldcity.net>
- 15) [130522] For Sale Items
by Donn Kuse <casey.jay@gte.net>
- 16) [130523] RE: MSP430 DIL module
by "Leon Heller" <leon_heller@hotmail.com>
- 17) [130524] Need Book
by "Karl F. Larsen" <k5di@zianet.com>
- 18) [130525] WARM it up rain delay...
by Chuck Adams <k7qo@earthlink.net>
- 19) [130526] Re: QRP Plus locked up on 7.041

- by "W3CDE Jerry L." <w3cde@bellsouth.net>
- 20) [130527] Re: Old Transmitter ?????
by Larry Przyborowski <k3peg@comcast.net>
- 21) [130528] RE: Conjugate Matching - What Happens in the Transmitter?
by Nick Kennedy <nkennedy@tcainet.net>
- 22) [130529] Re: WARM it up rain delay...
by "Trevor Jacobs" <kg6cyn@earthlink.net>
- 23) [130530] Re: A little story...or QRP fun!
by Bob Nielsen <nielsen@oz.net>
- 24) [130531] Lafayette GDO page correction...
by Ed Tanton <n4xy@earthlink.net>
- 25) [130532]
by Ed Tanton <n4xy@earthlink.net>
- 26) [130533] RE: Cadence student version PSPICE
by Tim and Michele Groat <tmgroat@peakpeak.com>
- 27) [130534] Re: Lafayette GDO page correction...
by Tom Feeny <tfeeny@comcast.net>
- 28) [130535] RE: Lafayette GDO page correction...
by Conrad Weiss <radman@best.com>
- 29) [130536] Re: Lafayette GDO page correction... doomed!!!
by Ed Tanton <n4xy@earthlink.net>
- 30) [130537] Re: Lafayette GDO page correction...
by Tom Feeny <tfeeny@comcast.net>
- 31) [130538] Rock-Mite Straight Key Mode Problem
by Chuck Adams <k7qo@earthlink.net>
- 32) [130539] feedline test
by Hans William Perl <hwp002@yahoo.com>
- 33) [130540] Re: Cadence student version PSPICE
by "Ian Wilson" <ianmwilson@earthlink.net>
- 34) [130541] Re: Old Transmitter ?????
by Tom Feeny <tfeeny@comcast.net>
- 35) [130542] Way OT: Ian Fleming book wanted
by "Howard Kraus" <K2UD@adelphia.net>
- 36) [130543] Four State QRP Group Wednesday Warble
by "David Bixler" <qrp@netins.net>
- 37) [130544] Re: Way OT: Ian Fleming book wanted
by "Ronald Hands" <ronald.hands@sympatico.ca>
- 38) [130545] Re: Conjugate Matching - What Happens in the Transmitter?
by "George, W5YR" <w5yr@att.net>
- 39) [130546] Re: The tuner character, WHEN ADJUSTED
by "George, W5YR" <w5yr@att.net>
- 40) [130547] Treasure Valley / SW Idaho / SE Oregon QRP get-together
by "Mike KW1ND" <kw1nd.web@homeinternet.net>
- 41) [130548] Re: A little story...or QRP fun!
by Bruce Rattray <rattray@gpfn.sk.ca>
- 42) [130549] Conjugate Matching Demonstration
by "Karl F. Larsen" <k5di@zianet.com>
- 43) [130550] Re: A little story...or QRP fun!

by "Trevor Jacobs" <kg6cyn@earthlink.net>
44) [130551] Re: The tuner character, WHEN ADJUSTED
by "Karl F. Larsen" <k5di@zianet.com>
45) [130552] Re: A little story...or QRP fun!
by David Hinerman <WD8CIV@worldnet.att.net>
46) [130553] QRP AFIELD: Comments from NW group
by ARDUJENSKI@aol.com
47) [130554] Re: A little story...or QRP fun! (fwd)
by Trevor Jacobs <kg6cyn@earthlink.net>
48) [130555] Fox- K4FB Hunt # 7
by Paul Womble <pwomble1@tampabay.rr.com>
49) [130556] RE: Conjugate Matching - What Happens in the Transmitter?
by Bill Coleman <aa4lr@arrl.net>
50) [130557] Re: Conjugate Matching Demonstration
by Bill Coleman <aa4lr@arrl.net>
51) [130558] NJQRP meeting Sat July 27
by "n2cx" <n2cx@voicenet.com>
52) [130559] A little story...or more fun.....QRP fun!
by "Charles Mabbott" <aa8vs@msn.com>
53) [130560] RE: Metric Time?
by Karl Kanalz <kkanalz@gcecispc.com>
54) [130561] FOX: NOUR HUNT #7.5
by "Jim NOUR" <n0ur@attbi.com>
55) [130562] Re: QRP AFIELD: Comments from NW group
by Bob Welch <p3226@earthlink.net>
56) [130563] Suggest a core ?
by "Tracy Markham" <tracy@bytemark.com>
57) [130564] Re: The tuner character, WHEN ADJUSTED
by "Stuart Rohre" <rohre@arlut.utexas.edu>
58) [130565] RE: Metric Time?
by "Steve Lawrence" <Steve.Lawrence@itwfeg.com>
59) [130566] More on A little story...or QRP fun!
by "Dick" <dick@g0bps.fsnet.co.uk>
60) [130567] Re: Suggest a core ?
by "Leon Heller" <leon_heller@hotmail.com>
61) [130568] Re: Conjugate Matching Demonstration
by Steven Weber <kd1jv@moose.ncia.net>
62) [130569] When is BUBBA?
by Jeff <fantbb@yahoo.com>
63) [130570] RE: Conjugate Matching - What Happens in the Transmitter?
by "Karl F. Larsen" <k5di@zianet.com>
64) [130571] FOX Goodie
by "Karl F. Larsen" <k5di@zianet.com>
65) [130572] Still looking for a 1K60
by Wayne AA5JJ <aa5jj@yahoo.com>
66) [130573] Fox - Summer Hunt Teams Results.
by Bruce Rattray <rattray@gpfn.sk.ca>
67) [130574] Re: FOX Goodie

- by Trevor Jacobs <kg6cyn@earthlink.net>
- 68) [130575] RE: Metric Time?
by Mighty Mik <mightymik2@attbi.com>
- 69) [130576] Fox - Summer Hunt Teams Results.
by Bruce Rattray <rattray@gpfn.sk.ca>
- 70) [130577] Re: Still looking for a 1K60
by Claude <mck20@yahoo.com>
- 71) [130578] QRP paddle kit question?
by "Ronald Davis" <RDavis24@carolina.rr.com>
- 72) [130579] Re: When is BUBBA?
by "Bob Hightower" <nk7m@extremezone.com>
- 73) [130580] Re: Still looking for a 1K60
by "carl seyersdahl" <carlseye@tampabay.rr.com>
- 74) [130581] Another View of Conjugate Matching - without the math! (long)
by "George, W5YR" <w5yr@att.net>
- 75) [130582] MFJ Model 401C Econo Keyer II
by Bruce Rattray <rattray@gpfn.sk.ca>
- 76) [130583] RE: Conjugate Matching - What Happens in the Transmitter?
by Bill Coleman <aa4lr@arrl.net>
- 77) [130584] Re: QRP paddle kit question?
by "Ian Wilson" <ianmwilson@earthlink.net>
- 78) [130585] Re: Metric Time?
by "Mark J. Dulcey" <mark@buttery.org>

Date: Tue, 23 Jul 2002 17:56:58 -0500
From: "Stuart Rohre" <rohre@arlut.utexas.edu>
To: "Karl F. Larsen" <k5di@zianet.com>
Cc: "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130508] Re: The tuner character, WHEN ADJUSTED
Message-ID: <008001c2329c\$41a7fb10\$4e100a0a@rohredt2000>

But, in such a bidirectional tuner, it seldom is going to have the same settings for reactance on first side as the second side, if first side is connected to a coax transmitter output, and the second side to some multiband antenna. I think that is the distinction that must be made, you cannot interchange the ports without retuning them. But, they surely can be interchange if a symmetrical circuit such as the Tee, or Pi. But not, in the case of parallel tank link coupled, etc.

I like George's introduction of the term bilateral, for such symmetric transmatches.

72, Stuart K5KVH

Date: Tue, 23 Jul 2002 18:14:51 -0500
From: "David Bixler" <qrp@netins.net>
To: "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130509] Four State QRP Group Meeting Report
Message-ID: <DBEPKBJH00EAHCKKIHPFOEBMDGAA.qrp@netins.net>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="us-ascii"
Content-Transfer-Encoding: 7bit

Hi folks:

The report with photos for the Four State QRP Group
July get-together held last Saturday is on the web at:

<http://www.w0ch.com/fsqrp/jul02/jul2002.htm>

Of special note are photos of several homebrew projects
that resulted from Doug Hendricks (KI6DS) visit during
our June meeting. Doug passed out NorCal 7040 KHz crystals
and challenged our members to "build something by next
meeting". Check out the report to see the results.....

72, Dave

David Bixler W0CH
Seneca, MO
Main Web Site: <http://w0ch.com>
Mirror Site: <http://showcase.netins.net/web/w0ch>

QRP: Little Radios, Big Fun!

Date: Tue, 23 Jul 2002 19:20:46 -0700
From: "Randy Shake" <rshake@cablenet-va.com>
To: "QRP-L Post" <qrp-l@lehigh.edu>
Subject: [130510] 40M QRP from Durango Co. Trail
Message-ID: <004101c232b8\$b8c3b4c0\$511dfea9@cablenetva.com>

Folks,

Here is an e-mail from Tom Little, N0DSP, about operating from the trail
near Durango, Co. If you have a chance look for his call.

Randy KC9LC

Tom Little, N0DSP wrote:

"I do have my 2 watt DSW 40 meter transceiver and a dipole in my backpack. Absolutely no promises, but, I will try to get on the air from our camp in the Chicago basin which is a 7 mile hike from the drop off spot of the Durango/ Silverton railroad.

My guess is the I would be at 7.040 +/- at around 9:00 PM (Colorado Local Time) on Monday 7/22, Tuesday 7/23, and Wednesday 7/24 night. Getting on the radio is secondary to climbing the mountains and eating dinner, so don't work too hard at looking for me. Monday night should be a good night for me to get on since we are hiking in and setting up camp, but not climbing any 14'ers that day."

Date: Tue, 23 Jul 2002 16:26:27 -0700
From: Bruce Grubbs <mail@brucegrubbs.com>
To: "Bob Hightower" <nk7m@extremezone.com>, "qrp" <qrp-1@lehigh.edu>
Cc: "azqrp" <azqrp@extremezone.com>
Subject: [130511] Re: [azqrp] Tuthill campground is open
Message-ID: <E17X92q-0005iA-00@pintail.mail.pas.earthlink.net>
Content-Type: text/plain;
charset="iso-8859-1"
MIME-Version: 1.0
Content-Transfer-Encoding: 8bit

Excellent news! I'll be thinking of the gang as I hump my pack (and K1) through the San Juan Mountains next weekend.

73
Bruce
N7CEE

Date: Tue, 23 Jul 2002 18:29:07 -0500
From: Nick Kennedy <nkennedy@tcainternet.com>
To: Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>
Subject: [130512] RE: ARRL Section News
Message-ID: <01C23276.D5250CA0.nkennedy@tcainternet.com>
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Content-Transfer-Encoding: 7bit

Yep. You are a curious fellow indeed.

72--Nick, WA5BDU

>Just curious.

--

/ \ / \ / \ / \ / \ John L. Sielke
(W)(2)(A)(G)(N) <http://www.w2agn.net>
 _ / _ / _ / _ / _ / ARCI, NJQRP, ARQrp, GQRP, RSGB
Ex- K3HLU, W7JEF, W4MPC, N4JS Yes, and ARRL member paid up until 2010.

Date: Tue, 23 Jul 2002 17:28:02 -0600 (CST)
From: Bruce Rattray <rattray@gpfn.sk.ca>
To: <kg6cyn@earthlink.net>
Cc: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130513] Re: A little story...or QRP fun!
Message-ID: <Pine.LNX.4.33.0207231725400.4733-100000@neale.gpfn.sk.ca>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hello Trev and Dick...yes that's what I meant but I guess I should have been more specific...my main point that we were just yakking about the hunt and decided to take the materials available, slap something together, throw it up and it bagged both foxii....ham radio fun!... ;-))

..72/73 - Bruce (VE5RC+VE5QRP) QRP-C#1 QRP-L#886 ARCI#9683 Zombie#272
A-1 Operator Club - 10/10# 944 - QRP Borg#1 - Whiner#10 -
- VE5QRP SOC#11 - VE5RC SOC#12 - oo#148 - K2#2032 - COG#15 -
"QRP! How sweet it is!" "I am da man wit "DAH" paddle!"

On Tue, 23 Jul 2002 kg6cyn@earthlink.net wrote:

> Dick,
>
> I think he means that 33 feet is the length of a 1/4 wave section of an
> antenna for the 40 meter band, not 40 meters in length... ;-)
>
> And yes if you cut both 33' legs of your 40 meter dipole in half, that'll give
> you aprox. a 20 meter antenna...

>
> 73's Trev KG6CYN
>
> On Tue, 23 Jul 2002 14:24:08 +0100 Dick <dick@g0bps.fsnet.co.uk> wrote:
>
> Hi gang,
>
> > I remembered that 33 feet was 40 mtrs so we just halved that, put a dipole
> together for 20
> > mtrs,
>
> I just love this conversion from feet to metres!
>
> 33 feet is actuall nearer 10m than 40m !!!!!
>
>
> Dick G0BPS
> G-QRP Club SSB Manager
> Vice President QRP-ARCI,
>
> dick@trickie.com or g0bps@gqrp.com
>
>
>
>
>

Date: Tue, 23 Jul 2002 23:36:53 +0100
From: Chuck Adams <k7qo@earthlink.net>
To: qrp-l@lehigh.edu
Subject: [130514] WARM it up!
Message-ID: <5.1.0.14.0.20020723231851.009ef990@mail.earthlink.net>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Gang,

I have one SWL (Small Wonder Labs) Rock-Mite built and in a case and on the air. I took pictures and will try to have them on the old web page later tonight. I have to write up some stuff.

For those that haven't been paying attention the Rock-Mite is a 40 meter transceiver from SWL (K1SWL owner, engineer, gopher, and general

manager and CEO of same) that has been mentioned many times before on QRP-L.

Dave calls it a "Wireless Code-practice Oscillator". The manual is exactly four pages long.

Page 1: Parts List

Page 2: Schematic

Page 3: Some mods already and suggestions from Dave.

Page 4: Parts layout diagram used to assemble the critter and some more op notes.

My kit was missing one varactor diode (I used a MV209 for a substitute and time will tell how that works) and two 1M ohm resistors. I got mine early 'cuz I had 7.040MHz crystals from Bomar and some extras that I shipped to Dave this week (he is out of town for the week) to help him get an early start on the Aug 2/3 date.

Hint: Put the SA612 in first. See the web page on how I did it. It will save you some time and trouble.

The 12-13V comes into a pad in the rear center of the PC board and a trace runs over to R8 (470 ohms) on the left hand rear side. PLEASE NOTE: If you use metallic standoffs you had better put some electrical tape over the R8 pad under the PC board. Good chance of a short occurring here. I noted this right off and put the tape on even though the 1/4" standoffs I used did not touch it. I just didn't want to take a chance later on. Dave ---- you might note this as a change to make in later versions if you do do one.....

I listened to the keying using a SWL-40+ and it is perfect, nice and crisp and clean. Nice job Dave, again. I'll have more details on the web page to help those that want to see more.

I used a 9cm by 13cm piece of aluminum to make the case bottom. Sprayed flat black.

Some of the pictures didn't color correct well so excuse the photography and some in B&W

because of the effect. You get the picture.

So. Starting tonight a 0200UTC (Wally-Mart time) I will be on 7.040MHz when the frequency is not in use by a QRO or other QRPer and will try to work someone by 0600UTC or later. I'll be monitoring with the vee-beam pointed NE to E. Some thunderboomers in the area so let's hope the QRN isn't too bad.

WARM WAS --- Worked All Rock-Mites while Working All States

WAS WARM --- Worked All States while Working All Rock-Mites

trying for the Tuna Tin II record.

I measured exactly 0.250W out using WM-2 wattmeter with 12.7V through 1N4003 diode for reverse polarity protection. I'll try to find a 1N5818 this weekend at Tuthill to up the voltage and the output. So I may be weak and you may have to wait until Winter to catch me.

FYI es Film at 11,

Chuck Adams, K7QO CP-60 k7qo@earthlink.net
<http://www.qsl.net/k7qo>

Moving to Arizona? --- Bring your own water, please.

Date: Tue, 23 Jul 2002 16:39:46 -0700
From: "Trevor Jacobs" <kg6cyn@earthlink.net>
To: "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130515] Re: A little story...or QRP fun!
Message-ID: <005e01c232a2\$3af942a0\$d612f4d8@tjacobs>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Hehehe...Just like the A team Bruce "I love it when a plan comes together!" Sounds like you had a blast. Too bad about the white tents, but sounds like you did just fine.

73's Trev KG6CYN

<http://home.earthlink.net/~kg6cyn>

<http://www.qsl.net/kg6cyn>

----- Original Message -----

From: Bruce Rattray <rattray@gpfn.sk.ca>

To: <kg6cyn@earthlink.net>

Cc: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>

Sent: Tuesday, July 23, 2002 4:28 PM

Subject: Re: A little story...or QRP fun!

>

> Hello Trev and Dick...yes that's what I meant but I guess I should have

> been more specific...my main point that we were just yakking about the
> hunt and decided to take the materials available, slap something
together,

> throw it up and it bagged both foxii....ham radio fun!... ;-))

>

> ..72/73 - Bruce (VE5RC+VE5QRP) QRP-C#1 QRP-L#886 ARCI#9683

Zombie#272

> A-1 Operator Club - 10/10# 944 - QRP Borg#1 - Whiner#10 -

> - VE5QRP SOC#11 - VE5RC SOC#12 - oo#148 - K2#2032 -

COG#15 -

> "QRP! How sweet it is!" "I am da man wit "DAH"
paddle!"

>

>

> On Tue, 23 Jul 2002 kg6cyn@earthlink.net wrote:

>

> > Dick,

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> > I think he means that 33 feet is the length of a 1/4 wave section of
an

> > antenna for the 40 meter band, not 40 meters in length... ;-)

> >

> > And yes if you cut both 33' legs of your 40 meter dipole in half,
that'll give

> > you aprox. a 20 meter antenna...

> >

> > 73's Trev KG6CYN

> >

> > On Tue, 23 Jul 2002 14:24:08 +0100 Dick <dick@g0bps.fsnet.co.uk>

wrote:

> >
> > Hi gang,
> >
> > > I remembered that 33 feet was 40 mtrs so we just halved that, put
a dipole
> > together for 20
> > > mtrs,
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> > I just love this conversion from feet to metres!
> >
> > 33 feet is actuall nearer 10m than 40m !!!!!!!
> >
> >
> > Dick G0BPS
> > G-QRP Club SSB Manager
> > Vice President QRP-ARCI,
> >
> > dick@trickie.com or g0bps@gqrp.com
> >
> >
> >
> >
> >
>

Date: Tue, 23 Jul 2002 20:01:02 -0400
From: "carl seyersdahl" <carlseye@tampabay.rr.com>
To: "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130516] books
Message-ID: <015d01c232a5\$33274740\$d2af2341@tampabay.rr.com>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I have a need for the book by Jerry Sevick on "transmission line
transformers". I have three books here I'd be willing to trade one or more
of for the book I want. !!

I have the " data book for homebrewers and qpr 'ers.
W1FB's QRP notebook.

W1FB's design notebook !!!

Is anyone interested in a trade of some sort ???

E-mail me direct if interested !!! Thanks !!

carl / kz5ca

Date: Wed, 24 Jul 2002 13:04:59 +0100
From: "Leon Heller" <leon_heller@hotmail.com>
To: "Low Power" <qrp-1@lehigh.edu>
Subject: [130517] MSP430 DIL module
Message-ID: <DAV5385eRNVZ2D2gNMr0001251f@hotmail.com>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I've just prototyped a little 0.8" 20-pin DIL module based on the TSSOP version of the MSP430F110 microcontroller. It's about 1" square. It has lots of applications in amateur radio, because of the miniscule power consumption and low RFI, as well as the small size. It was also very cheap to make; I got some free sample chips from TI. They are under \$1 in large quantities.

You can see a pic here:

http://www.geocities.com/leon_heller/dil.jpg

The module is plugged into a programmer/test PCB which has a header for the JTAG debugger/programmer, a power connector and an LED. Both PCBs were made at home, in the kitchen.

I could make it smaller, but my 60 year old eyes aren't really up to it. 8-(

73, Leon

--

Leon Heller, G1HSM
leon_heller@hotmail.com
http://www.geocities.com/leon_heller

Date: Wed, 24 Jul 2002 00:35:25 +0000
From: "Leon Heller" <leon_heller@hotmail.com>
To: leon_heller@hotmail.com, qrp-1@lehigh.edu
Subject: [130518] Re: MSP430 DIL module
Message-ID: <F2293Vp20N39x6HHGNZ00001a73@hotmail.com>
Mime-Version: 1.0
Content-Type: text/plain; format=flowed

>http://www.geocities.com/leon_heller/dil.jpg

Sorry, I forgot that Geocities requires an index page for images. Try:

http://www.geocities.com/leon_heller/dil.html

Leon

--

Leon Heller, G1HSM Tel: +44 1327 359058 Email:leon_heller@hotmail.com

My web page: http://www.geocities.com/leon_heller

My low-cost Altera Flex design kit: <http://www.leonheller.com>

Send and receive Hotmail on your mobile device: <http://mobile.msn.com>

Date: Tue, 23 Jul 2002 18:45:38 -0600 (MDT)
From: "Karl F. Larsen" <k5di@zianet.com>
To: Stuart Rohre <rohre@arlut.utexas.edu>
Cc: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130519] Re: The tuner character, WHEN ADJUSTED
Message-ID: <Pine.LNX.4.44.0207231838220.2560-1000000@Daisy.dog>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Tue, 23 Jul 2002, Stuart Rohre wrote:

> But, in such a bidirectional tuner, it seldom is going to have the same
> settings for reactance on first side as the second side, if first side is
> connected to a coax transmitter output, and the second side to some
> multiband antenna. I think that is the distinction that must be made, you
> cannot interchange the ports without retuning them. But, they surely can be
> interchange if a symmetrical circuit such as the Tee, or Pi. But not, in
> the case of parallel tank link coupled, etc.
>
> I like George's introduction of the term bilateral, for such symmetric
> transmatches.
> 72, Stuart K5KVH

Yes I do agree it better says what works. I did try reversing a
50 ohm load with the transmitter on a Tee tuner and it worked.

But my later testing with a long feedline showed me that you
then have to adjust the tuner with care or you miss the good transfer of

power.

>
>
>

--

Yours Truly,

- Karl F. Larsen, (505) 524-3303 -

Date: Tue, 23 Jul 2002 19:43:37 -0500
From: Nick Kennedy <nkennedy@tcainternet.com>
To: "'leon_heller@hotmail.com'" <leon_heller@hotmail.com>,
Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130520] RE: MSP430 DIL module
Message-ID: <01C23281.3D9155A0.nkennedy@tcainternet.com>
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Content-Transfer-Encoding: 7bit

That's amazing. What's the spacing on those TSSOP pins? 0.025 inch?

When are you going to sell some generic one so the rest of us (well, me) can use our AD9835s?

72--Nick, WA5BDU

-----Original Message-----

From: Leon Heller [SMTP:leon_heller@hotmail.com]

I've just prototyped a little 0.8" 20-pin DIL module based on the TSSOP version of the MSP430F110 microcontroller.

You can see a pic here:

http://www.geocities.com/leon_heller/dil.jpg

Date: Tue, 23 Jul 2002 17:53:20 -0700
From: "Mike Standbridge" <ve7mst@goldcity.net>
To: "QRP-1" <qrp-l@lehigh.edu>

Subject: [130521] Old Transmitter ?????
Message-ID: <001c01c232ac\$82b292e0\$96dcc2cf@mike>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Hello to all List Members,
I have found what I think may be a very old transmitter. It has the following markings:

PORTABLE TRANSMITTER
Model-A54 Serial: 407
MULTI-PRODUCTS CO.
Hazel Park, Mich.

It is crystal or internal VFO controlled and covers 80-10 meters. Can anyone tell me where I can get a schematic or any kind of help with this rig. It is missing an oscillator tube and another small tube is burned out. There is also a short in it somewhere.

If anyone has any idea about this rig, please reply direct to:
ve7mst@goldcity.net or to the list if you prefer.
TIA
72/73 de VE7MST
Mike

Date: Tue, 23 Jul 2002 20:51:22 -0400
From: Donn Kuse <casey.jay@gte.net>
To: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>,
10-10 list <tentenlist@ten-ten.org>, elecraft@mailman.qth.net
Subject: [130522] For Sale Items
Message-ID: <3D3DFA0A.934EE83D@gte.net>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Have the following still available:

1. Tennatest HF/VHF Noise bridge in original box with manual. For description stt:
<http://www.thewireman.com/misc.html#Tenna>, \$55.00 shipped CONUS
2. SW 40++ with Rit, FreqMite, LED power on with front panel switch, Bourne 10 turn tuning pot, in SW case, power output 6+ w @13.8v. All manuals. \$125.00 shipped CONUS

Please email me direct. Tnx
72/73 Donn, WB4ZWT

Date: Wed, 24 Jul 2002 00:56:12 +0000
From: "Leon Heller" <leon_heller@hotmail.com>
To: nkennedy@tcainternet.com, qrp-1@lehigh.edu
Subject: [130523] RE: MSP430 DIL module
Message-ID: <F32Tluy2i9UzZjQ2Jow0001fd29@hotmail.com>
Mime-Version: 1.0
Content-Type: text/plain; format=flowed

>From: Nick Kennedy <nkennedy@tcainternet.com>
>Reply-To: nkennedy@tcainternet.com
>To: "Low Power Amateur Radio Discussion" <qrp-1@Lehigh.EDU>
>Subject: RE: MSP430 DIL module
>Date: Tue, 23 Jul 2002 19:43:37 -0500
>
>That's amazing. What's the spacing on those TSSOP pins? 0.025 inch?
>
>When are you going to sell some generic one so the rest of us (well, me)
>can use our AD9835s?

It's 0.65 mm or 0.256".

I've already done one for the AD9835, but haven't drilled it yet. I don't have any 9835s to check it with. Let me have your address and I'll put one in the post for you to try.

Leon

--

Leon Heller, G1HSM Tel: +44 1327 359058 Email:leon_heller@hotmail.com
My web page: http://www.geocities.com/leon_heller
My low-cost Altera Flex design kit: <http://www.leonheller.com>

Chat with friends online, try MSN Messenger: <http://messenger.msn.com>

Date: Tue, 23 Jul 2002 19:24:11 -0600 (MDT)

From: "Karl F. Larsen" <k5di@zianet.com>
To: qrp-l@lehigh.edu
Subject: [130524] Need Book
Message-ID: <Pine.LNX.4.44.0207231918070.2560-100000@Daisy.dog>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

If you have "Very High-Frequency Techniques, Vol. 1, Edition 1, Radio Research Laboratory Staff, Harvard University, Mc Graw Hill, I'm interested in pages 10 through 15.

If have or can get a copy and take it to your nearest Kinko store I will pay you all costs and \$10.00 for the trouble.

New Mexico State University library doesn't have any of these.

--
Yours Truly,

- Karl F. Larsen, (505) 524-3303 -

Date: Wed, 24 Jul 2002 01:46:49 +0100
From: Chuck Adams <k7qo@earthlink.net>
To: qrp-l@lehigh.edu
Subject: [130525] WARM it up rain delay...
Message-ID: <5.1.0.14.0.20020724014455.009ecbc0@mail.earthlink.net>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Gang,

I may be delayed by about 30 minutes or so in getting on 7.040MHz.

We have a thunderboomer about 10 km away and the TenTec Antenna Coupler is snapping even though I have a #10 wire across the 300 ohm window line. An 80 meter vee-beam is a great lighting detector. :-)

And we haven't had any rain until a week ago for almost a year.... Go figure, but we're not complaining.

dit dit es cul,

Chuck Adams, K7QO CP-60 k7qo@earthlink.net
<http://www.qsl.net/k7qo>

Moving to Arizona? --- Bring your own water, please.

Date: Tue, 23 Jul 2002 21:51:21 -0400
From: "W3CDE Jerry L." <w3cde@bellsouth.net>
To: adeweiss@sd.value.net
Cc: Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>
Subject: [130526] Re: QRP Plus locked up on 7.041
Message-ID: <3D3E0819.D3C5F9CA@bellsouth.net>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

AH HA! ... Now I remember, it happened to me when I had too much RF floating around the radio and no ground on it! The factory reset took care of the problem.

Jerry
W3CDE

Ade Weiss W0RSP wrote:

>
> Jeff asked:
>
> "Hello to my fellow QRP Plus owners.
>
> I sold a QRP Plus to a fellow QRPer and when he got it the freq was
> locked up on
> 7.041. Any ideas on how to fix this?
> It's never happened to me before but for some reason I seem to
> remember something about it happening here on the list.
> Really like to help him out!
>
> Thanks!
> jeff"
>
> I haven't had this happen, but it is worth "resetting" to factory memory. To do
> this, press the MEM button and then turn on the rig. Maybe this will do the
> trick. I hope!
>

> 72, Ade W0RSP

Date: Tue, 23 Jul 2002 22:04:07 -0400
From: Larry Przyborowski <k3peg@comcast.net>
To: ve7mst@goldcity.net,
Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>
Subject: [130527] Re: Old Transmitter ?????
Message-ID: <001b01c232b6\$661b5860\$6401a8c0@longh101.md.comcast.net>
MIME-version: 1.0
Content-type: text/plain; charset=iso-8859-1
Content-transfer-encoding: 7BIT

Hi Mike,

I believe it's Elmac's transmitter model A-54. I had one of those back in the early '60s.

It was the first rig I had as a General Class Licensee.

My Elmac was given to me by my mentor, Ed Savko, W3FLE.

Ed used the Elmac mobile and worked a lot of QSOs with an 8 foot whip antenna.

I believe you can find the schematics for it at:
<ftp://bama.sbc.edu/downloads/elmac/a-54/>

73, Larry K3PEG

> If anyone has any idea about this rig, please reply direct to:

> ve7mst or to the list if you prefer.

> TIA

> 72/73 de VE7MST

> Mike

>

>

Date: Tue, 23 Jul 2002 21:10:35 -0500
From: Nick Kennedy <nkennedy@tcainternet.com>
To: Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>
Subject: [130528] RE: Conjugate Matching - What Happens in the Transmitter?
Message-ID: <01C2328D.63D24F60.nkennedy@tcainternet.com>
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Content-Transfer-Encoding: 7bit

Nice post, Doc. I want to comment and then get off on yet another counter-conjugate match rant. Nurse, stand by with those sedatives.

-----Original Message-----

From: James R. Duffey [SMTP:jamesd1@flash.net]

"The matching network is a 4 terminal network connected between the tuner and the active device, so from the conjugate match theorem, there is a conjugate match at transmitter output and at the active device/matching network interface. What is the impedance that is being matched at the input to the output network of the transmitter? That is the load impedance of the active device, sometimes called the dynamic load impedance. For transistor finals, this dynamic load impedance is $(V_{\text{collector}})^2 / 2 * P_{\text{out}}$. For a 5 watt QRP rig at 12 V, this is $144/10 = 14.4$ Ohms."

"Now, this is the source resistance that is conjugate matched."

Hmmm ...

"Consider two measurements, both of which support this claim. Disconnect the final device. Replace it with a resistor that has the same value as the load impedance quoted above. Measure the output impedance with a bridge. You will measure 50 Ohms. This affirms the conjugate match. As an aside, this is one method of optimizing the output network filter. Replace the final with the load impedance. Put an antenna analyzer at the output. Adjust the network until the analyzer reads 50 Ohms. This technique is in Solid State Design.

The other experiment is to replace the active device with a potentiometer. Place an RF bridge at the output set to 50 Ohms. Adjust the potentiometer until the bridge balances. Measure the resistance of the potentiometer. It will be the load impedance."

Doc, isn't that self-defining? I mean the filter/matching network designed to convert the 50 ohm load to 14.4 ohms will also work the other direction and convert 14.4 up to 50. But it's because you decided to make the filter that way--you needed to provide a 14.4 ohm load to the transistor to get the desired power. So we're not really talking about making something equivalent to the device's source resistance.

"This is why I understand that the conjugate match also applies to transmitters. - Dr. Megacycle KK6MC/5"

Now I'll attempt to say why I don't. And I really, REALLY hate that it's become necessary to say this, but ... I'm not attacking anyone, I'm not mad at anyone, I'm not offended that anyone disagrees with me, and no, I don't think I know it all. (Far from it.) Am I upset that Doc, George, and Bill--three smart guys--all disagree with me? Not a bit. This is supposed to be fun.

About theories--When asked if scientific theories represented some kind of absolute truth, Stephen Hawking came up with a great commonsense answer something like this: A theory allows us to predict some kind of physical behavior. If observations agree with the theory to a high degree of accuracy, we call it a good theory. Combine that with Ockham's razor and you'll see why the CM thing doesn't do it for me.

Ockham's razor says the simplest explanation (theory) is (usually) the best. Added complexity needs to have some payback.

OK, here's my simple theory. The transmitter is designed to work as rated with a 50 ohm load. The antenna isn't Zo matched to the feedline. The shack end of a feedline has an input impedance that is not 50 ohms and contains reactance. We look at that and at our TX and proceed to build a matching device (or connect and adjust a tuner) so that the transmitter sees the required 50 ohms. End of story. No smoke and mirrors, no networks of networks, no claim of a certain transmitter source impedance.

I don't know of any parameters of the line, SWR, loss and so on that we can't calculate. No claim is made for maximum power transfer from the TX.

In fact, different TX's of 50 ohm design connected to the system have different efficiencies.

OK, now let me try to summarize what I've heard about the CM deal. (I realize that not all adherents make all the same claims. For example, Doc's version does have the 50 ohm TX and so is consistent with itself.)

Theorem: CM is a very compelling theorem and produces a very satisfying result in that at all junctions, there is a conjugate match. Therefore, a correctly adjusted ham installation of antenna, line, tuner, TX must be conjugate matched.

"But the match condition at the TX end means only 50% efficiency." Oh ... OK, it's not really matched at the transmitter end. "Well, then it can't be a CM if it doesn't obey the "cut it anywhere" rule." (By rule, you should be able to cut the 50 ohm coax between TX and tuner and see 50 ohms toward the TX.)

Well, OK it is matched, but the maximum power is a different kind of

maximum power than most folks think of and doesn't restrict efficiency to 50%.

Alternate #1--OK, it IS matched, but it's matched to a different kind of resistance than you'd have in a typical Thevenin equivalent circuit and that resistance doesn't have any power dissipated in it.

Alternate #2--the source impedance of the TX can't be known, so you're not allowed to look that direction when you cut and measure. But then you can't do the famous "conjugate everywhere" test. Well, you just have to take it on faith, the CM exists, but not at the TX end. Conjugate matches exist at every junction, but only if you don't look to the left.

"It's very hard to determine the source impedance of a transmitter designed for a 50 ohm load, but it's unlikely to be 50 ohms, so you can't have a CM at that end and therefore not anywhere" OK, ... &*&!!*

See, this is where the Ockham's razor part breaks down for me. I have to believe in a new kind of maximum power and a new kind of resistance, plus I have to not notice the magician's black cape covering the TX. That's a high price to pay. But what about the added benefits? Well, what about them? The main (maybe only) benefit is the beauty of having a CM at all junctions, but I'm told not to look for it because that requires the TX to have a 50 ohm impedance, which screws everything up. So I don't see any added value at all. I think the simple model allows every calculation and prediction that the CM one does, and I don't have to change my religion.

Closing now with a Hymn from George Dobbs' Arkiecon songbook:

There once was a William of Ockham
Whose razor like logic could shock 'em
He refused to accept
A complex concept
When a simple one got to the bottom.

72--Nick, WA5BDU

Date: Tue, 23 Jul 2002 19:29:30 -0700
From: "Trevor Jacobs" <kg6cyn@earthlink.net>
To: <k7qo@earthlink.net>,
"Low Power Amateur Radio Discussion" <qrp-1@lehigh.edu>
Subject: [130529] Re: WARM it up rain delay...
Message-ID: <00d301c232b9\$f0c9f0e0\$d612f4d8@tjacobs>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

Chuck,

Think I'm hearing some of your storm. 40 meters is awful noisy right with static crashes. Been bad the past few days here. Think I might start getting up early and see how the bands are in the mornings.

73's Trev KG6CYN

<http://home.earthlink.net/~kg6cyn>

<http://www.qsl.net/kg6cyn>

----- Original Message -----

From: Chuck Adams <k7qo@earthlink.net>

To: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>

Sent: Tuesday, July 23, 2002 5:46 PM

Subject: WARM it up rain delay...

>

>

> Gang,

>

> I may be delayed by about 30 minutes or so in getting on 7.040MHz.

>

> We have a thunderboomer about 10 km away and the TenTec Antenna

> Coupler is snapping even though I have a #10 wire across the 300 ohm

> window line. An 80 meter vee-beam is a great lightning detector. :-)

>

> And we haven't had any rain until a week ago for almost a year.... Go

> figure, but we're not complaining.

>

> dit dit es cul,

>

>

>

>

>

> Chuck Adams, K7QO CP-60 k7qo@earthlink.net

> <http://www.qsl.net/k7qo>

>

> Moving to Arizona? --- Bring your own water, please.

>

Date: Tue, 23 Jul 2002 18:09:29 -0700

From: Bob Nielsen <nielsen@oz.net>

To: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130530] Re: A little story...or QRP fun!
Message-ID: <20020724010929.GB14746@oz.net>
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Disposition: inline

Gee, I thought Canadians always thought in metres (of course, they don't have the E.C. to castigate them when reverting to feet like you Brits do).

On Tue, Jul 23, 2002 at 02:24:08PM +0100, Dick wrote:

> Hi gang,
>
> > I remembered that 33 feet was 40 mtrs so we just halved that, put a dipole
> together for 20
> > mtrs,
>
> I just love this conversion from feet to metres!
>
> 33 feet is actuall nearer 10m than 40m !!!!!!!
>
>
> Dick G0BPS
> G-QRP Club SSB Manager
> Vice President QRP-ARCI,
>
> dick@trickie.com or g0bps@gqrp.com

Date: Tue, 23 Jul 2002 23:11:10 -0400
From: Ed Tanton <n4xy@earthlink.net>
To: QRP-L Reflector <qrp-l@lehigh.edu>
Subject: [130531] Lafayette GDO page correction...
Message-ID: <5.1.1.6.2.20020723230813.096d6dc0@pop.earthlink.net>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

My bad... I THOUGHT I had listed the addr properly... I usually GO to the page and cut-and-paste the address-and thought I had for this one... I have no idea what happened. Take the "gdos" out... e.g.
<http://www.n4xy.com/Lafayette_GDO.html> . THIS one is correct.

73 Ed Tanton N4XY <n4xy@earthlink.net>

Ed Tanton N4XY
189 Pioneer Trail

Marietta, GA 30068-3466

website: <http://www.n4xy.com>

All emails <IN> & <OUT> checked by
Norton AntiVirus with AutoProtect

LM: ARRL QCWA AMSAT & INDEXA;
SEDXC NCDXA GACW QRP-ARCI
OK-QRP QRP-L #758 K2 (FT) #00057

Date: Tue, 23 Jul 2002 23:17:09 -0400
From: Ed Tanton <n4xy@earthlink.net>
To: QRP-L Reflector <qrp-l@lehigh.edu>
Message-ID: <5.1.1.6.2.20020723231504.00ab8ee0@pop.earthlink.net>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

I'm obviously doomed... I managed to reverse this yet again... it should
be: <http://www.n4xy.com/GDO_Lafayette.html> . PART of this is because
EUDORA does not allow me to click on a URL within a message when it's being
composed.

73 Ed Tanton N4XY <n4xy@earthlink.net>

Ed Tanton N4XY
189 Pioneer Trail
Marietta, GA 30068-3466

website: <http://www.n4xy.com>

All emails <IN> & <OUT> checked by
Norton AntiVirus with AutoProtect

LM: ARRL QCWA AMSAT & INDEXA;
SEDXC NCDXA GACW QRP-ARCI
OK-QRP QRP-L #758 K2 (FT) #00057

Date: Tue, 23 Jul 2002 21:27:45
From: Tim and Michele Groat <tmgroat@peakpeak.com>
To: qrp-l@lehigh.edu
Subject: [130533] RE: Cadence student version PSPICE
Message-ID: <3.0.3.16.20020723212745.5287dbae@peakpeak.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

> PSpice syntax is a superset of SPICE2 syntax. They are pretty compatible if
> you just use vanilla constructs.

Another possible hang-up is if the Cadence version is based on SPICE3
instead of
SPICE2. There are some things that SPICE3 does differently. For example, the
general-purpose "B" generator replaces "E", "F", "G", and "H" generators
with POLY
coefficients. POLY is not supported in SPICE3, and that means you have to
fix just
about every op-amp model you download from the web.

Also, SPICE3 has syntax extensions do most of the same things the proprietary
PSPICE extensions will--but they aren't the same, so you must edit your
netlists to
get them working.

72, 73--

Tim, KROU

Date: Tue, 23 Jul 2002 23:45:40 -0400
From: Tom Feeny <tfeeny@comcast.net>
To: *QRP-L <qrp-l@lehigh.edu>
Subject: [130534] Re: Lafayette GDO page correction...
Message-ID: <001601c232c4\$9c19a3a0\$3a5c2044@waldlk01.mi.comcast.net>
MIME-version: 1.0
Content-type: text/plain; charset=iso-8859-1
Content-transfer-encoding: 7BIT

> <http://www.n4xy.com/Lafayette_GDO.html> . THIS one is correct.

Still does not work for me. Sorry.
Tom

Date: Tue, 23 Jul 2002 21:12:58 -0700
From: Conrad Weiss <radman@best.com>
To: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>,
 "'Tom Feeny'" <tfeeny@comcast.net>
Subject: [130535] RE: Lafayette GDO page correction...
Message-ID: <01C2328D.B923BDA0@209-162-48-234.thegrid.net>

Tom,

Try URL: http://www.n4xy.com/GDO_Lafayette.html

Ed had an error in the first URL. Great site, BTW :)!

Best,

Conrad Weiss
NN6CW

From: Tom Feeny[SMTP:tfeeny@comcast.net]
Sent: Tuesday, July 23, 2002 8:46 PM
To: Low Power Amateur Radio Discussion
Subject: Re: Lafayette GDO page correction...

> <http://www.n4xy.com/Lafayette_GDO.html> . THIS one is correct.

Still does not work for me. Sorry.
Tom

Date: Wed, 24 Jul 2002 00:20:54 -0400
From: Ed Tanton <n4xy@earthlink.net>
To: tfeeny@comcast.net,
 "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130536] Re: Lafayette GDO page correction... doomed!!!
Message-ID: <5.1.1.6.2.20020724001830.09714280@pop.earthlink.net>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Sorry all... I'm obviously doomed... I managed to reverse this yet again...
it should be the URL below... PART of this is because EUDORA does not allow
me to click on a URL within a message when it's being composed.

http://www.n4xy.com/GDO_Lafayette.html

73 Ed Tanton N4XY <n4xy@earthlink.net>

Ed Tanton N4XY
189 Pioneer Trail
Marietta, GA 30068-3466

website: <http://www.n4xy.com>

All emails <IN> & <OUT> checked by
Norton AntiVirus with AutoProtect

LM: ARRL QCWA AMSAT & INDEXA;
SEDXC NCDXA GACW QRP-ARCI
OK-QRP QRP-L #758 K2 (FT) #00057

Date: Wed, 24 Jul 2002 00:24:46 -0400
From: Tom Feeny <tfeeny@comcast.net>
To: *QRP-L <qrp-l@lehigh.edu>
Subject: [130537] Re: Lafayette GDO page correction...
Message-ID: <003901c232ca\$0fb1fa60\$3a5c2044@waldlk01.mi.comcast.net>
MIME-version: 1.0
Content-type: text/plain; charset=Windows-1252
Content-transfer-encoding: 7BIT

> Try URL: http://www.n4xy.com/GDO_Lafayette.html
>
> Ed had an error in the first URL. Great site, BTW :)!

Yes it is a great site. I used to have a Millen 90651
tube type dipper. Don't know what ever happened to it.
The picture of the Millen dipper on that site
needs help, however. :))
Tom

PS. I found that RM-103A clock at Wally World.

Someone here posted that they are in the jewelry dept.,
not home furnishings with the other clocks. He is right.

Date: Wed, 24 Jul 2002 03:06:20 +0100
From: Chuck Adams <k7qo@earthlink.net>
To: qrp-l@lehigh.edu
Subject: [130538] Rock-Mite Straight Key Mode Problem
Message-ID: <5.1.0.14.0.20020724030138.009eb760@mail.earthlink.net>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Gang,

I forgot to put in the original posting the following.

There is a mode that if either of the dot or dash inputs is
grounded upon power-up, the keyer function is bypassed
(the Rock-Mite has a built in Iambic keyer --- neato stuff)
and the input accepts a straight-key or external keyer.

I tried this out by shorting out the dash and sure enough
it goes into the straight key mode. When I short the dot
line then the transmitter keys and stays keyed until I remove
the dash clip to short it out. It looks like both inputs are
keying the transmitter instead of the one that was not
shorted on power-up. So this firmware change I'm sure
Dave will correct. Hard to catch everything under a time
pressure line.

Some one with a Rock-Mite might comment on this
from the ones at Lobster-Con.

dit dit

Chuck Adams, K7QO CP-60 k7qo@earthlink.net
<http://www.qsl.net/k7qo>

Moving to Arizona? --- Bring your own water, please.

Date: Tue, 23 Jul 2002 21:47:29 -0700 (PDT)
From: Hans William Perl <hwp002@yahoo.com>
To: qrp-l@lehigh.edu
Subject: [130539] feedline test
Message-ID: <20020724044729.31060.qmail@web20901.mail.yahoo.com>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii

To Karl F. Larsen,
On conducting the feedline test you describe
and writing-up and publishing here on the
QRP-L list your FB report of results you
obtained: Well done!

Hans William Perl
MS Physics NYU
WP4GVW (ex KP4ABF)

Date: Tue, 23 Jul 2002 14:12:17 -0600 (MDT)
From: "Karl F. Larsen"
To: qrp-l@lehigh.edu
Subject: [130490] Feedline Test
Message-ID:
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

The purpose of this test is to see if a semi random
load impedance
can be loaded without large loss with a MFJ-914 4 pole
network. It is
necessary to use a coax feed line so a common ground
at the load will not
defeat the measurements. Tests will be made to assure
the load measurement
does not effect the experiment.

Equipment: 200 feet of RG-213 coax with connectors at
each end; FT-817
radio, measured load, an oscilloscope to measure
voltage across the resistor
(and from that compute the power to the resistor), and
the Vertronics
VEC-584B.

Step 1:

Make a load that will have a SWR of 5.0 on 3.50 MHz using 50 ohm feed line. I fooled around and with the Analyzer measured a 19 ohm 1 watt resistor in series with a 910 pf capacitor to have a $Z=50$ ohms and $SWR=5.0$ and when I used this data in my program it said the resistor is 19.23 ohms and the capacitor is 980 pf. So the load is going to be this value. A picture of the load is at Fig. 1.

Step 2:

Measure the power at the resistor without the tuner, with the load direct connected to the radio. Equipment is radio set to 1 watt output, and Techtronix 422 Oscilloscope with a 10:1 cable. The scope read 4.4 blocks peak-to-peak on the .2 volt/block range with a 10 to 1 probe which means it read 4.4 blocks of 2 volts/block which is 8.8 volts peak-to-peak. Fig 2.

This results in an RMS voltage of 4.4 volts peak/(square root of 2) which is 3.1 volts rms. Power is V^2/R which is $9.68/19 = 0.51$ watts. So with a direct connected Load we get about half of the output to the resistance.

Step 3:

Put load on the tuner output and tune up for a 1:1 match to the radio. This worked fine and the result is that I'm getting almost exactly 4.4 volts peak to peak so still getting just 0.51 watts to the resistor. Re-measured and this is correct. The coax connection to the load is about 3 feet long of RG-58B coax. At 3.5 MHz it has very low loss. I removed the scope probe and it had no effect on the tuning.

Step 4:

This is a sanity check. I replaced the load with a 50 ohm 2 watt resistor and calculated from the measured voltage that I am getting 1.0 watts to this resistor. Putting the 50 Ohm resistor right on the back of the radio got 4.1 times 5 volts or 20.5 volts pp or 10.25 p or 7.247 Vrms and that's 1.05 watts. That is what the radio is supposed to deliver in this power setting. I see no measurable loss through the tuner.

Step 5: I have a very long piece of RG-213, about 200 feet. I will put connectors on it. Did that and have it running from the output of the tuner to the load and after a slight re tune I read 4.8 squares each square is 2 volts pp or 9.6 volts pp. This is $9.6/2=4.8$ volts peak. This is 3.394 volts RMS and the power is 0.61 watts! I shorted one end and the SWR was 12.9:1. This means the loss in this cable at 3.5 MHz is about 0.7 DB.

Step 6: Put the load back on the output of the tuner without any feed line. I get 4.1 squares that comes out 8.2 v-pp or 0.44 watts.

Conclusions:

When I ran the signal through 200 feet of RG-213 I saw an increase in power into a complex load with an SWR of 5.0 compared to what I get with no feed line. It's an increase from 0.44 to 0.61 watts when the input power was 1.0 watts both measured through the tuner. The tuner had to be tuned with care, just a small mis-tuning would knock the power way down.

With the Load direct on the output of the radio it showed a high SWR but did put 0.51 watts into the resistor. This is a measure of how well the radio can feed poor loads.

I have no idea why adding 0.7 DB of attenuation in the system increased the power going into the 19 ohm resistor, but it did. This must be some measure of the thing called conjugate matching. But I have no idea what it is even reading Maxwell and others on this list.

The effect does get more power to the load even when it's a very poor match to the characteristic impedance of the line (50 ohms).

--
Yours Truly,

- Karl F. Larsen, (505) 524-3303 -

Do You Yahoo!?
Yahoo! Health - Feel better, live better
<http://health.yahoo.com>

Date: Tue, 23 Jul 2002 22:03:49 -0700
From: "Ian Wilson" <ianmwilson@earthlink.net>
To: <tmgroat@peakpeak.com>,
"Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130540] Re: Cadence student version PSPICE
Message-ID: <000601c232cf\$80049c00\$0b02a8c0@trabucoserver>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

>

> Another possible hang-up is if the Cadence version is based on SPICE3
> instead of
> SPICE2.

It isn't.

There are some thingss that SPICE3 does differently. For example, the
> general-purpose "B" generator replaces "E", "F", "G", and "H" generators
> with POLY
> coefficients. POLY is not supported in SPICE3, and that means you have to
> fix just
> about every op-amp model you download from the web.

True. However, PSpice does [did] have POLY.

>
> Also, SPICE3 has syntax extensions do most of the same things the
proprietary
> PSpice extensions will--but they aren't the same, so you must edit your
> netlists to
> get them working.
>

I was wondering whether the original poster knows what engine is inside
Winspice
(the program he is using). This would be useful information.

73,

--ian

Date: Wed, 24 Jul 2002 01:33:20 -0400
From: Tom Feeny <tfeeny@comcast.net>
To: *QRP-L <qrp-l@lehigh.edu>
Subject: [130541] Re: Old Transmitter ?????
Message-ID: <001e01c232d3\$a1321f20\$3a5c2044@waldlk01.mi.comcast.net>
MIME-version: 1.0
Content-type: text/plain; charset=iso-8859-1
Content-transfer-encoding: 7BIT

Yes, that is an Elmac, made a few miles from here.
It was mainly a mobile rig. I think there is a web site with
manuals and schematics. Angelo, W8ERN used to work

there. He may be helpful.

EVANGELO DIAMANTONI
5056 KIERSTAN DR
BRIGHTON MI 48114-9050
USA

angelo@tir.com

Tom

> I have found what I think may be a very old transmitter. It has the
> following markings:
>
> PORTABLE TRANSMITTER
> Model-A54 Serial: 407
> MULTI-PRODUCTS CO.
> Hazel Park, Mich.
>
> It is crystal or internal VFO controlled and covers 80-10 meters. Can
anyone
> tell me where I can get a schematic or any kind of help with this rig. It
is
> missing an oscillator tube and another small tube is burned out. There is
> also a short in it somewhere.

Date: Wed, 24 Jul 2002 07:21:24 -0400
From: "Howard Kraus" <K2UD@adelphia.net>
To: <qrp-1@lehigh.edu>
Subject: [130542] Way OT: Ian Fleming book wanted
Message-ID: <000701c23304\$3f7c6d40\$07633018@buf.adelphia.net>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I'm wondering if someone on the list can come through on this. My son needs a copy of "From Russia with Love" by Ian Fleming, a classic James Bond book. Can't find it anywhere, no longer in print.

His class is assigned to read it over the summer break. His instructor is apparantly unaware that it is not exactly on the bookshelves at the libraries or bookstores around these parts.

Thanks for any help on this.

72

Howard Kraus, K2UD

Date: Wed, 24 Jul 2002 08:51:59 -0500
From: "David Bixler" <qrp@netins.net>
To: "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130543] Four State QRP Group Wednesday Warble
Message-ID: <DBEPKBJH00EAHCKKIHPFEECIDGAA.qrp@netins.net>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="us-ascii"
Content-Transfer-Encoding: 7bit

Hello QRP'ers:

This evening, the Four State QRP Group will have
our weekly "Wednesday Warble" on or near 3580.5
KHz at 9:00 PM central time.

All QRP'ers within range of our signals are invited
to drop in and say howdy. Despite summer static
and poor conditions on 80 meters, we are enjoying
some nice chats with several states each Wednesday.

72, Dave

David Bixler W0CH
Seneca, MO
Four State QRP Group: <http://www.w0ch.com/fsqrp>
W0CH Main Web Site: <http://w0ch.com>
W0CH Mirror Site: <http://showcase.netins.net/web/w0ch>

QRP: Little Radios, Big Fun!

Date: Wed, 24 Jul 2002 10:11:27 -0400
From: "Ronald Hands" <ronald.hands@sympatico.ca>
To: "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>

Subject: [130544] Re: Way OT: Ian Fleming book wanted
Message-ID: <00c701c2331c\$03cd9220\$0164a8c0@p133>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

K2UD wrote:

> I'm wondering if someone on the list can come through on this. My son
needs
> a copy of "From Russia with Love" by Ian Fleming, a classic James Bond
book.
> Can't find it anywhere, no longer in print.
>
>

Lots of copies available via www.abebooks.com.
(Tried to reply back-channel but your ISP apparently is refusing mail
from sympatico.ca, the Bell Canada provider.)

-- Ron VE3SP

Date: Tue, 23 Jul 2002 22:01:53 -0500
From: "George, W5YR" <w5yr@att.net>
To: nkennedy@tcainternet.com
Cc: Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>
Subject: [130545] Re: Conjugate Matching - What Happens in the Transmitter?
Message-ID: <3D3E18A1.E77E7806@att.net>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Nick,

My advice is for you to believe whatever you want and be happy to adjust
your tuner for 1:1 SWR in the 50-ohm line to your 50-ohm transmitter. You
will be just as happy as anyone and your station will work just as well.
<:}

There is no requirement whatsoever that one understand what is happening in
a system or believe what anyone else may say about it. It is your radio and
antenna and you are free to do with it as you please.

Forget about CM - you don't like it, you don't think that it *is*, and don't want to think about it, so don't. Your radio and antenna will never know the difference since they are unaware of your opinions.

But, behind your back, the system is going to do what it is going to do and a lot of what it does is explained only by CM theory and the effects it produces. Sorry, but our opinions just don't carry much weight vs. the physics of the situation.

Of course, this approach tosses out some seven decades of network and circuit theory development and application in the interests of simplicity.

BTW, I can't find any reason given in your "happy theory" as to how the reflected wave from the mismatched antenna is prevented from reaching the transmitter output terminal. Where does that power go, anyway? How does it get there? How can there be more forward power in the line than is coming out of the transmitter when the line SWR is not 1:1. Why is less power radiated from the antenna when the tuner is not adjusted "just right" as Karl's latest experiment noted?

Evidently all this is "taken care of" when you simply transform the line input impedance to $50 + j0$. Magic! <:}

Nothing personal here, Nick, but I just don't know what else to say . . . clearly your mind is made up and there is no merit in my saying any more about this to you.

Live long and prosper! See you next year at ArkieCon!

73/72/00, George W5YR - the Yellow Rose of Texas
Fairview, TX 30 mi NE of Dallas in Collin county EM13qe
Amateur Radio W5YR, in the 56th year and it just keeps getting better!
QRP-L 1373 NETXQRP 6 SOC 262 COG 8 FPQRP 404 TEN-X 11771 I-LINK 11735
Icom IC-756PRO #02121 Kachina 505 DSP #91900556 Icom IC-765 #02437

Nick Kennedy wrote:

>

> Nice post, Doc. I want to comment and then get off on yet another
> counter-conjugate match rant. Nurse, stand by with those sedatives.

<snip Jim's posting>

> Now I'll attempt to say why I don't. And I really, REALLY hate that it's
> become necessary to say this, but ... I'm not attacking anyone, I'm not mad
> at anyone, I'm not offended that anyone disagrees with me, and no, I don't
> think I know it all. (Far from it.) Am I upset that Doc, George, and
> Bill--three smart guys--all disagree with me? Not a bit. This is supposed

> to be fun.
>
> About theories--When asked if scientific theories represented some kind of
> absolute truth, Stephen Hawking came up with a great commonsense answer
> something like this: A theory allows us to predict some kind of physical
> behavior. If observations agree with the theory to a high degree of
> accuracy, we call it a good theory. Combine that with Ockham's razor and
> you'll see why the CM thing doesn't do it for me.
>
> Ockham's razor says the simplest explanation (theory) is (usually) the
> best. Added complexity needs to have some payback.
>
> OK, here's my simple theory. The transmitter is designed to work as rated
> with a 50 ohm load. The antenna isn't Z_0 matched to the feedline. The
> shack end of a feedline has an input impedance that is not 50 ohms and
> contains reactance. We look at that and at our TX and proceed to build a
> matching device (or connect and adjust a tuner) so that the transmitter
> sees the required 50 ohms. End of story. No smoke and mirrors, no
> networks of networks, no claim of a certain transmitter source impedance.
> I don't know of any parameters of the line, SWR, loss and so on that we
> can't calculate. No claim is made for maximum power transfer from the TX.
> In fact, different TX's of 50 ohm design connected to the system have
> different efficiencies.
>
> OK, now let me try to summarize what I've heard about the CM deal. (I
> realize that not all adherents make all the same claims. For example,
> Doc's version does have the 50 ohm TX and so is consistent with itself.)
>
> Theorem: CM is a very compelling theorem and produces a very satisfying
> result in that at all junctions, there is a conjugate match. Therefore, a
> correctly adjusted ham installation of antenna, line, tuner, TX must be
> conjugate matched.
> "But the match condition at the TX end means only 50% efficiency." Oh ...
> OK, it's not really matched at the transmitter end. "Well, then it can't
> be a CM if it doesn't obey the "cut it anywhere" rule." (By rule, you
> should be able to cut the 50 ohm coax between TX and tuner and see 50 ohms
> toward the TX.)
> Well, OK it is matched, but the maximum power is a different kind of
> maximum power than most folks think of and doesn't restrict efficiency to
> 50%.
> Alternate #1--OK, it IS matched, but it's matched to a different kind of
> resistance than you'd have in a typical Thevenin equivalent circuit and
> that resistance doesn't have any power dissipated in it.
> Alternate #2--the source impedance of the TX can't be known, so you're not
> allowed to look that direction when you cut and measure. But then you
> can't do the famous "conjugate everywhere" test. Well, you just have to
> take it on faith, the CM exists, but not at the TX end. Conjugate matches
> exist at every junction, but only if you don't look to the left.

> "It's very hard to determine the source impedance of a transmitter designed
> for a 50 ohm load, but it's unlikely to be 50 ohms, so you can't have a CM
> at that end and therefore not anywhere" OK, ... &*&!!*!
>
> See, this is where the Ockham's razor part breaks down for me. I have to
> believe in a new kind of maximum power and a new kind of resistance, plus I
> have to not notice the magician's black cape covering the TX. That's a
> high price to pay. But what about the added benefits? Well, what about
> them? The main (maybe only) benefit is the beauty of having a CM at all
> junctions, but I'm told not to look for it because that requires the TX to
> have a 50 ohm impedance, which screws everything up. So I don't see any
> added value at all. I think the simple model allows every calculation and
> prediction that the CM one does, and I don't have to change my religion.
>
> Closing now with a Hymn from George Dobbs' Arkiecon songbook:
>
> There once was a William of Ockham
> Whose razor like logic could shock 'em
> He refused to accept
> A complex concept
> When a simple one got to the bottom.
>
> 72--Nick, WA5BDU

Date: Tue, 23 Jul 2002 23:28:13 -0500
From: "George, W5YR" <w5yr@att.net>
To: "Karl F. Larsen" <k5di@zianet.com>
Cc: Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>
Subject: [130546] Re: The tuner character, WHEN ADJUSTED
Message-ID: <3D3E2CDD.DA0CBC24@att.net>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

"Karl F. Larsen" wrote:

>
> On Mon, 22 Jul 2002, George, W5YR wrote:
>
> > Bilateral and bidirectional are the two words at issue here, Stuart.
>
> Where did Bilateral come from George?

Not sure what the question is, Karl, but it "comes" from basic network theory.

The concept of "bilateral" is one of the fundamental aspects of network definition and design. The term "bi-directional" does not appear in any of the networks texts that I studied or have seen, so I doubt that it is a formal term used in network discussion. As I said in my posting to Stuart, it is an application term involving how the network is used, not a property of the network itself. It is the bilateral aspect of a network that would govern its use in a bi-directional sense, I suppose.

The concept of bilateral comes from the Reciprocity Theorem:

"In any linear network containing bilateral linear impedances and energy sources, the ratio of the voltage E introduced in one mesh to the current I in any second mesh is the same as the ratio obtained if the positions of E and I are interchanged."

>From this definition, the term "transfer impedance" is defined as

$$Z_{12} = E_1/I_2 \quad \text{and} \quad Z_{21} = E_2/I_1$$

There are transfer admittances as well; they are the reciprocals of the transfer impedances.

A bit of complex algebra yields the result that

$$Z_{12} = Z_{21}$$

and thus it is proved that reciprocity is a property of bilateral networks.

The practical consequence of this result is that if one knows the transfer function of a network in one direction (one terminal pair used as "input" and the other as "output") one automatically knows the transfer function of the network with the terminals interchanged.

Note that all of this applies only to networks containing bilateral linear impedances. Thus, networks with tubes, transistors, diodes and other active non-bilateral circuit elements do not obey the Reciprocity Theorem.

There are several other basic network theorems including the conjugate matching theorem that has been the topic of discussion here for some time. All are basic, well-understood, used for decades and give correct results.

Incidentally, if anyone is still interested I have come across a simple derivation of the conjugate matching theorem which makes it clear why a CM at one junction of networks also produces a CM at all other junctions. Looks obvious when you look at it . . . <:}

73/72/oo, George W5YR - the Yellow Rose of Texas
Fairview, TX 30 mi NE of Dallas in Collin county EM13qe
Amateur Radio W5YR, in the 56th year and it just keeps getting better!
QRP-L 1373 NETXQRP 6 SOC 262 COG 8 FPQRP 404 TEN-X 11771 I-LINK 11735
Icom IC-756PRO #02121 Kachina 505 DSP #91900556 Icom IC-765 #02437

Date: Wed, 24 Jul 2002 08:43:53 -0600 (MDT)
From: "Mike KW1ND" <kw1nd.web@homeinternet.net>
To: <qrp-l@lehigh.edu>
Subject: [130547] Treasure Valley / SW Idaho / SE Oregon QRP get-together
Message-ID: <52381.156.153.254.10.1027521833.squirrel@webmail.velocitus.net>
MIME-Version: 1.0
Content-Type: text/plain; charset=iso-8859-1
Content-Transfer-Encoding: 8bit

Greetings, all. Just a short notice to the list of the second, monthly gathering of QRP-infected individuals to be held in Nampa, Idaho. The date is this Saturday, July 27th at 8 am, in Lakeside Park, just off Garrity Boulevard on 16th Avenue. We meet in the pavilion on the east side of 16th, near the playground and US Army tank.

We met last month at the same location, and had 5 hams make it. We're quite low-key, meeting to talk QRP, cw and about anything else related to radio. We had two K2 rigs last time, along with an SW-20, SST-40 and PW-1. I've built the "portable travel vertical" from the July QST and will be bringing it along. Feel free to bring any radio gear!

Last month's meeting ran about 2 hours, but no one's under any obligation to stay that long. We'd like to see more QRP types!

Email me direct for more specific directions & a map, if needed.

--
73,

Mike KW1ND
Nampa, Idaho DN13qn

Date: Wed, 24 Jul 2002 09:04:59 -0600 (CST)
From: Bruce Rattray <rattray@gpfn.sk.ca>
To: Bob Nielsen <nielsen@oz.net>
Cc: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130548] Re: A little story...or QRP fun!

Message-ID: <Pine.LNX.4.33.0207240852040.30774-100000@neale.gpfn.sk.ca>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hi Bob....hope all is well there...actually it's a mixed bag here in Canada...we have the young 'uns who I hear are being taught a little bit about metric in school....we have the really old 'uns who are Imperial all the way and then you have the middle 'uns (me) who were taught Imperial first and are now in a mixed bag using both Imperial and Metric...hihi...

...I'm finding that I have been able to "visualize" Imperial measurements all my life because that's what I was taught...eg - one yard is about "this" (hands spread apart) long....72 degrees F feels really good especially with low humidity...etc...I'm slowly getting used to the metric system...20 degrees celcius means a fine comfortable day coming up, especially with low humidity... ;-)

....mileage signs; well to me if, according to a highway sign, I have 100 KM to drive, my mind automatically does a conversion as in, point 6 times 100 equals about 60 miles to go and about an hour's time at 60 mph...

...Bonnie and I have a small conversion slider chart for converting from metric to Imperial for cooking times, liquids, etc...

...so I guess I will remain Imperial for the most part and do the conversions that are "close enough"...but as I go along I will move closer to the metric system....so now you've heard the "rest of the story" eh!?!...HAR!....

..72/73 - Bruce (VE5RC+VE5QRP) QRP-C#1 QRP-L#886 ARCI#9683 Zombie#272
A-1 Operator Club - 10/10# 944 - QRP Borg#1 - Whiner#10 -
- VE5QRP SOC#11 - VE5RC SOC#12 - oo#148 - K2#2032 - COG#15 -
"QRP! How sweet it is!" "I am da man wit "DAH" paddle!"

Date: Wed, 24 Jul 2002 09:25:58 -0600 (MDT)
From: "Karl F. Larsen" <k5di@zianet.com>
To: qrp-l@lehigh.edu
Subject: [130549] Conjugate Matching Demonstration
Message-ID: <Pine.LNX.4.44.0207240913350.1643-100000@Daisy.dog>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Yesterday I reported on a test I conducted. In this message I will use numbers that are easier to use and in clear language explain what happened.

The short result is that I had a transmitter making 10 watts and a load that was 19 ohms in series with 910 pf, and a Tee type tuner. With the load attached direct to the tuner I got 4 watts into the resistor.

When I put 200 feet of coax on the output of the tuner and the load at the other end, I got 6 watts of power into the resistor.

Since the coax has 0.7 DB of loss, the whole 10 watts were not available at the load. But the test proves the feed line can INCREASE the power into the load (antenna).

Whether this is conjugate matching I can't say. But I can say that something makes my 88 foot long 80 meter dipole work well and I demonstrated it.

--

Yours Truly,

- Karl F. Larsen, (505) 524-3303 -

Date: Wed, 24 Jul 2002 08:25:46 -0700
From: "Trevor Jacobs" <kg6cyn@earthlink.net>
To: "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>,
<TheseusRob@cs.com>
Subject: [130550] Re: A little story...or QRP fun!
Message-ID: <001a01c23326\$6257f2e0\$4198b3d1@tjacobs>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Did I miss something here???

73's Trev KG6CYN
<http://home.earthlink.net/~kg6cyn>
<http://www.qsl.net/kg6cyn>

----- Original Message -----
From: TheseusRob@cs.com

To: kg6cyn@earthlink.net
Sent: Wednesday, July 24, 2002 7:18 AM
Subject: Re: A little story...or QRP fun!

Nobody wants to read this trash!

Date: Wed, 24 Jul 2002 09:33:12 -0600 (MDT)
From: "Karl F. Larsen" <k5di@zianet.com>
To: "George, W5YR" <w5yr@att.net>
Cc: Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>
Subject: [130551] Re: The tuner character, WHEN ADJUSTED
Message-ID: <Pine.LNX.4.44.0207240929360.10109-100000@Daisy.dog>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Tue, 23 Jul 2002, George, W5YR wrote:

>
>
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> Incidentally, if anyone is still interested I have come across a simple
> derivation of the conjugate matching theorem which makes it clear why a CM
> at one junction of networks also produces a CM at all other junctions.
> Looks obvious when you look at it . . . <:}
>
 Hi George, I'm getting the old writing that Walt Maxwell said
was the definitive description of CM. But would like to see what you
have. Yesterday in an experiment I proved CM or something works. See my
messages on the list.

--

Yours Truly,

- Karl F. Larsen, (505) 524-3303 -

Date: Wed, 24 Jul 2002 11:34:34 -0400
From: David Hinerman <WD8CIV@worldnet.att.net>
To: qrp-1@lehigh.edu
Subject: [130552] Re: A little story...or QRP fun!
Message-ID: <5.1.0.14.1.20020724112505.00a762d0@ipostoffice.worldnet.att.net>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

At 09:04 AM 7/24/2002 -0600, you wrote:

>....mileage signs; well to me if, according to a highway sign, I have 100
>KM to drive, my mind automatically does a conversion as in, point
>6 times 100 equals about 60 miles to go and about an hour's time
>at 60 mph...

Bruce,

I love driving in Canada - I pass a sign that says "Windsor 27" and I'm there in 15 minutes. Makes the trip seem to go faster. But the first time I ever drove in Canada was in a minivan rented at the Calgary airport. It was night, snowing, and slippery, and the first speed limit sign I passed said 100 on it. I almost turned around and went home.

>...Bonnie and I have a small conversion slider chart for converting from
>metric to Imperial for cooking times, liquids, etc...

Cooking times? You convert minutes to fortnights? (Grin) Seriously, I believe the only "official" SI unit of time is the second. So all these metric recipes that call for X grams of this, Y liters of that, and bake at 175 degrees for 20 minutes aren't exactly being pure in their measurements.

>...so I guess I will remain Imperial for the most part and do the
>conversions that are "close enough"...but as I go along I will move closer
>to the metric system....so now you've heard the "rest of the story"

When I was a kid the government here started a program to get Americans to switch to metric. The most memorable part was a poster of an attractive young lady in a bikini with her measurements called out in cm.

I'm all for dimensioned drawings, but I'm sure the feminists of the day had a hand in ending that program.

Dave

"You can fool some of the people all of the time. That's enough to make a living." - Lance Burton

Dave Hinerman
WD8CIV@worldnet.att.net

Date: Wed, 24 Jul 2002 12:37:40 EDT
From: ARDUJENSKI@aol.com
To: qrp-l@lehigh.edu
Subject: [130553] QRP AFIELD: Comments from NW group
Message-ID: <46.2aecbda1.2a7031d4@aol.com>
MIME-Version: 1.0
Content-Type: text/plain; charset="US-ASCII"
Content-Transfer-Encoding: 7bit

I know not a lot of info has been published on the subject but it appears the event is scheduled for 21 September--same day as the local SALMON RUN event (sort of the WA QSO party).

We are assembling a group to probably work both events so it willl involve SSB as well as CW. I know the QRP AFIELD is not a SSB event traditionally but hope to catch many of you with SSB too

This is not NWQRP but rather a random group of QRPers here in the WA area.

Alan KB7MBI in Woodinville, WA
FISTS 5702 Proud member of ARRL

Date: Wed, 24 Jul 2002 10:15:42 -0700
From: Trevor Jacobs <kg6cyn@earthlink.net>
To: qrp-l@lehigh.edu
Subject: [130554] Re: A little story...or QRP fun! (fwd)
Message-ID: <Springmail.0994.1027530942.0.05813400@webmail.pas.earthlink.net>

Hi Gang,

Just wondering if any of the rest of you have gotten negative e-mails from this guy: TheseusRob@cs.com? I looked the e-mail address up on the list

server, and looked his call up on Buckmaster, it's:

Robert C. Reynolds, KD5PSH
440 Camino Hermosa
Corrales, NM 87048
USA
License Class: Technician
License Issue/Renewal Date: 09-06-2001
License Expiration Date: 09-06-2011
FCC FRN Number: 0005578919

The only mail I ever sent to him was the same one I sent to the list. I think this guy forgot to take his Prozac!

----- Forwarded message -----
Date: Wed, 24 Jul 2002 12:14:54 EDT
From: kg6cyn@earthlink.net
Reply-to: TheseusRob@cs.com
To: kg6cyn@earthlink.net
Subject: Re: A little story...or QRP fun!

Send no more mail to me or PAY the PRICE!

73's Trev KG6CYN
<http://home.earthlink.net/~kg6cyn>
<http://www.qsl.net/kg6cyn>

Date: Wed, 24 Jul 2002 13:36:40 -0400
From: Paul Womble <pwomble1@tampabay.rr.com>
To: Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>,
FP QRP <fpqrp-1@mpna.com>
Subject: [130555] Fox- K4FB Hunt # 7
Message-ID: <3D3EE5A7.D9BC66B3@tampabay.rr.com>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

I'll be one of the Foxii tomorrow night. I'll set up shop somewhere between 14.059 - 14.061 listening up. Usual exchange:

W8PIG 55N FL PAUL 5W W8PIG

Will be running my K2 and a 2 element yagi @ 75'.

Good luck all. Hope to see you in the log.

73

Paul K4FB/fox

Date: Wed, 24 Jul 2002 13:48:38 -0400
From: Bill Coleman <aa4lr@arrl.net>
To: <nkennedy@tcainternet.com>,
"Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130556] RE: Conjugate Matching - What Happens in the Transmitter?
Message-ID: <20020724175011.MNDX21884.imf10bis.bellsouth.net@[192.168.0.20]>
Mime-Version: 1.0
Content-Type: text/plain; charset="US-ASCII"

On 7/23/02 10:10 PM, Nick Kennedy at nkennedy@tcainternet.com wrote:

>Now I'll attempt to say why I don't. And I really, REALLY hate that it's
>become necessary to say this, but ... I'm not attacking anyone, I'm not mad
>at anyone, I'm not offended that anyone disagrees with me, and no, I don't
>think I know it all. (Far from it.) Am I upset that Doc, George, and
>Bill--three smart guys--all disagree with me? Not a bit. This is supposed
>to be fun.

I'm not going to jump into the midding of a discussion about conjugate matching inside of transmitters. I understand the debate, but the whole thing seems to me as an attempt to cast observations into a set of models that they clearly don't fit.

But I do want to point up some other points.

>About theories--When asked if scientific theories represented some kind of
>absolute truth, Stephen Hawking came up with a great commonsense answer
>something like this: A theory allows us to predict some kind of physical
>behavior. If observations agree with the theory to a high degree of
>accuracy, we call it a good theory.

Hawking is correct. Empirical science cannot really prove anything is true. It can only prove something is false. A theory, despite its longevity, only lasts until it is disproved. It's called "progress".

Indeed, there's a running joke that progress is only made in particle physics when the old physicists who cotton to older theories die off and

are replaced by younger physicists who are more familiar with newer theories.

>OK, here's my simple theory. The transmitter is designed to work as rated
>with a 50 ohm load. The antenna isn't Z_0 matched to the feedline. The
>shack end of a feedline has an input impedance that is not 50 ohms and
>contains reactance. We look at that and at our TX and proceed to build a
>matching device (or connect and adjust a tuner) so that the transmitter
>sees the required 50 ohms. End of story. No smoke and mirrors, no
>networks of networks, no claim of a certain transmitter source impedance.

Indeed. (But what does this have to do with the subject of the thread?)

> I don't know of any parameters of the line, SWR, loss and so on that we
>can't calculate. No claim is made for maximum power transfer from the TX.
> In fact, different TX's of 50 ohm design connected to the system have
>different efficiencies.

Do they? If ten transmitters of different designs all output 100 watts, the efficiency of the transmatch, feedline and antenna are unchanged. The internal efficiency of the transmitter has not been specified, and can vary all over the map. (Consider a class A amp versus a Class C, for example)

>OK, now let me try to summarize what I've heard about the CM deal. (I
>realize that not all adherents make all the same claims. For example,
>Doc's version does have the 50 ohm TX and so is consistent with itself.)
>
>Theorem: CM is a very compelling theorem and produces a very satisfying
>result in that at all junctions, there is a conjugate match. Therefore, a
>correctly adjusted ham installation of antenna, line, tuner, TX must be
>conjugate matched.

Yes.

>"But the match condition at the TX end means only 50% efficiency." Oh ...

"You there! Sit down! Clearly we have matched the TX with the desired load, and the efficiency is way more than 50%. Since we didn't specify the transmitter source impedance, you cannot claim an efficiency of only 50%. Go back to freshman EE classes. Do not pass GO. Do not collect \$200...."

>OK, it's not really matched at the transmitter end.

Sure it is. We didn't say anything in the problem about the source impedance of the transmitter. All we said was the transmitter was designed to operate into a 50 ohm load. We've supplied that.

> "Well, then it can't
>be a CM if it doesn't obey the "cut it anywhere" rule." (By rule, you
>should be able to cut the 50 ohm coax between TX and tuner and see 50 ohms
>toward the TX.)

Sure it does. Because you're not allowed to cut inside the TX box. You
can't tell what it's source impedance is.

Besides, the whole scenario ASSUMES that the problem is set up for the
theoretical "Maximum Power Transfer" condition. (Which I feel is horribly
mis-named) That's not how the problem was set up.

The error here is an attempt to apply a theoretical model that isn't
applicable to the problem.

Bill Coleman, AA4LR, PP-ASEL Mail: aa4lr@arrl.net
Quote: "Not within a thousand years will man ever fly!"
 -- Wilbur Wright, 1901

Date: Wed, 24 Jul 2002 13:52:25 -0400
From: Bill Coleman <aa4lr@arrl.net>
To: <k5di@zianet.com>,
 "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130557] Re: Conjugate Matching Demonstration
Message-ID: <20020724175359.WUWM14378.imf12bis.bellsouth.net@[192.168.0.20]>
Mime-Version: 1.0
Content-Type: text/plain; charset="US-ASCII"

On 7/24/02 11:25 AM, Karl F. Larsen at k5di@zianet.com wrote:

>Yesterday I reported on a test I conducted. In this meesage I
>will use numbers that are easier to use and in clear language explain
>what happened.

>

> The short result is that I had a transmitter making 10 watts and
>a load that was 19 ohms in series with 910 pf, and a Tee type tuner.
>With the load attached direct to the tuner I got 4 watts into the
>resister.

>

> When I put 200 feet of coax on the output of the tuner and the
>load at the other end, I got 6 watts of power into the resistor.

WOW Karl! You've discovered a new source of energy!

You better rush to the patent office with your results before someone beats you to it!

> Since the coax has 0.7 DB of loss, the whole 10 watts were not
> available at the load. But the test proves the feed line can INCREASE
> the power into the load (antenna).

[Sober Look] Please describe exactly how you measured the 4 watts and 6 watts.

Oh, and Karl. This time, when we tell you the answer, please have the courtesy to tell us that we were right.

Bill Coleman, AA4LR, PP-ASEL Mail: aa4lr@arrl.net
Quote: "Not within a thousand years will man ever fly!"
 -- Wilbur Wright, 1901

Date: Wed, 24 Jul 2002 14:25:32 -0400 (EDT)
From: "n2cx" <n2cx@voicenet.com>
To: njqrp@njqrp.org
Cc: qrp-l@lehigh.edu
Subject: [130558] NJQRP meeting Sat July 27
Message-ID: <200207241825.g60IPWK7022152@email2.voicenet.com>
MIME-Version: 1.0
Content-Type: text/plain; charset=iso-8859-1

Group,

This Saturday, July 27 the monthly NJQRP meeting will be held at our usual location in Princeton, NJ. The location, as always, is the Food Court at the Forrestal Center along Rt. 1 in Princeton. The meeting time is nominally 9:30 am and though festivities usually end around noon, some stay around and enjoy lunch from the local vendors.

A map and directions can be found on the NJQRP web site www.njqrp.org.

We have not set topic for this month although several members have promised to bring along excess, parts, equipt. etc. to give away, barter or sell for a reasonable amount. Those participating will be doing their "green" duty in recycling as well as cleaning out their basements, garages, attics and so on in order to make room for even more "stuff." Did someone say pelf?

In addition, the KA5DVS PAC-12 antenna has become a hit since its publication in the latest QHB. At least three local members have rolled their own versions, each with a little twist on the original design. So bring along your PAC-XX to show it off.

And as always please bring your projects completed or not for show and tell, for helpful advice or for Troubleshooting.

There will also be a short talk on N2APB's latest brainchild, the QuickieLab that will be unveiled in the next ARP Quarterly. NJQRP will get advanced notice of this version of a "microprocessor breadboard For the rest of us." Using a Basic Stamp module which is programmed using PBASIC and a common home computer, non computer geniuses can easily do their digital thing.

The QuickieLab is going to be the basis for a number of simple collaborative projects by N2APB and N2CX and will have its own section on the NJQRP web site. The first such project will see the light of day for the first time this Saturday.

So come on out to swap parts and show off your goodies or simply show up to gawk and talk.

Joe, N2CX and George, N2APB for the NJQRP club

Date: Wed, 24 Jul 2002 14:31:25 -0400
From: "Charles Mabbott" <aa8vs@msn.com>
To: WD8CIV@worldnet.att.net, qrp-1@lehigh.edu
Subject: [130559] A little story...or more fun.....QRP fun!
Message-ID: <F43mVBCOWHJVk14AU100000b724@hotmail.com>
Mime-Version: 1.0
Content-Type: text/plain; format=flowed

Did you know, North America's largest skating rink is in Canada. It is the 401 during the winter months.....

73 oo

Chuck AA8VS

>From: David Hinerman <WD8CIV@worldnet.att.net>
>Reply-To: WD8CIV@worldnet.att.net
>To: "Low Power Amateur Radio Discussion" <qrp-1@Lehigh.EDU>
>Subject: Re: A little story...or QRP fun!

>Date: Wed, 24 Jul 2002 11:34:34 -0400

>

>At 09:04 AM 7/24/2002 -0600, you wrote:

>>....mileage signs; well to me if, according to a highway sign, I have 100

>>KM <snip>

"If your not part of the solution,
there is good money to be made
prolonging the problem."

<http://68.43.100.7:81/aa8vs>

Send and receive Hotmail on your mobile device: <http://mobile.msn.com>

Date: Wed, 24 Jul 2002 13:26:23 -0500

From: Karl Kanalz <kkanalz@gcecis.com>

To: "'rattray@gpfn.sk.ca'" <rattray@gpfn.sk.ca>,
Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>

Subject: [130560] RE: Metric Time?

Message-ID: <01C23316.58E820A0@KKANALZ>

Oh no, Bruce! Don't tell me that they've gone and "metricized" *time* now!

You wrote:

-----Original Message-----

From: Bruce Rattray [SMTP:rattray@gpfn.sk.ca]

Sent: Wednesday, July 24, 2002 10:05 AM

To: Low Power Amateur Radio Discussion

Subject: Re: A little story...or QRP fun!

<snip>

..Bonnie and I have a small conversion slider chart for converting from
metric to Imperial for cooking times, liquids, etc...<snip>

Date: Wed, 24 Jul 2002 13:29:30 -0500

From: "Jim N0UR" <n0ur@attbi.com>

To: "QRP-L" <qrp-l@lehigh.edu>

Subject: [130561] FOX: N0UR HUNT #7.5

Message-ID: <000701c23340\$0ce73e00\$6a202942@ce1.client2.attbi.com>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I'll be Paul's other half tomorrow night, and after the flip of a coin, I
will be down low. Hunt for me down 14.055 and below. I will aim my beam
South to start, then rotate East, North, West and end up back South. If you
don't hear me at first, hang in there.

The 0200Z start in well past my bed time, so be kind

72s es GL

Jim NOUR

Date: Wed, 24 Jul 2002 11:39:32 -0700
From: Bob Welch <p326@earthlink.net>
To: ARDUJENSKI@aol.com
Cc: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130562] Re: QRP AFIELD: Comments from NW group
Message-ID: <3D3EF464.226B6936@earthlink.net>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

> Hey Guys have you seen this one? <http://www.buddipole.com/>

Bob

> ARDUJENSKI@aol.com wrote:
>
>> I know not a lot of info has been published on the subject but it appears the
>>
>> event is scheduled for 21 September--same day as the local SALMON RUN event
>> (sort of the WA QSO party).
>>
>
.

Date: Wed, 24 Jul 2002 11:36:56 -0700
From: "Tracy Markham" <tracy@bytemark.com>
To: "QRP-L" <qrp-l@lehigh.edu>
Subject: [130563] Suggest a core ?
Message-ID: <GNEOLGDJDOPEALHJMKLCMEEFCHAA.tracy@bytemark.com>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="Windows-1252"
Content-Transfer-Encoding: 7bit

I found, I think from a suggestion on this list, a great site of simple circuits. One has a 2N5109 for a nice receiver preamp. It doesn't specify the core; think something in line with a F37-43 or F50-43 would work?

<http://www.qsl.net/yo5ofh/projects/wbhoiplna.gif>

this fellow has a lot of good schematics.

Tracy N4LGH

Date: Wed, 24 Jul 2002 13:42:24 -0500
From: "Stuart Rohre" <rohre@arlut.utexas.edu>
To: "Karl F. Larsen" <k5di@zianet.com>
Cc: "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130564] Re: The tuner character, WHEN ADJUSTED
Message-ID: <002501c23341\$dbcb9bc0\$4e100a0a@rohredt2000>

Karl, yes of course with two identical 50 ohm loads it will work both ways without adjustment, but then in that case you did not need the transmatch to start with. The more interesting case is what is the reactance seen looking into the input AFTER adjustment for differing load, ie transmitter side 50 ohms matched, output side a multi band antenna, say a 135 foot dipole fed on 20 meters. I think you said you had a similar antenna?

73, Stuart K5KVH

Date: Wed, 24 Jul 2002 14:56:55 -0400

From: "Steve Lawrence" <Steve.Lawrence@itwfeg.com>
To: qrp-l@lehigh.edu
Subject: [130565] RE: Metric Time?
Message-ID: <0F6869EB10.1D47C906-0N85256C00.00679DB5-85256C00.0068144C@itwfeg.com>
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

I'm not sure about "metric" time, but I recently read about another interesting attempt by the Swiss company, Swatch, to create a new time standard called "Internet Time". Based on 1,000 "beats" a day each unit of time is about 1 minute, 26 seconds. More can be found of this goofy idea at...

http://www.swatch.com/itime_tools/itime.php?color=black&textcolor=white

Apparently, they sell some watches that keep this time!?!@#!

Steve
aa8af

Karl Kanalz <kkanalz@gcecispc.com>
Sent by: owner-qrp-l@Lehigh.EDU
07/24/2002 02:26 PM
Please respond to kkanalz

To: "Low Power Amateur Radio Discussion" <qrp-l@Lehigh.EDU>
cc:
Subject: RE: Metric Time?

Oh no, Bruce! Don't tell me that they've gone and "metricized" *time* now!

You wrote:

-----Original Message-----

From: Bruce Rattray [SMTP:rattray@gpfn.sk.ca]
Sent: Wednesday, July 24, 2002 10:05 AM
To: Low Power Amateur Radio Discussion
Subject: Re: A little story...or QRP fun!

<snip>

..Bonnie and I have a small conversion slider chart for converting from metric to Imperial for cooking times, liquids, etc...<snip>

Date: Wed, 24 Jul 2002 20:44:43 +0100
From: "Dick" <dick@g0bps.fsnet.co.uk>
To: <rattray@gpfn.sk.ca>,
"Low Power Amateur Radio Discussion" <qrp-1@lehigh.edu>
Subject: [130566] More on A little story...or QRP fun!
Message-ID: <005901c2334a\$8f902420\$72fafea9@main>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Some years ago I had a vacation in Malta.

Took the rig and all the bits required including a wire doublet
fed by a length of coax. On arrival at hotel I found that coax was missing
so was the wire!

A local hardware shop has some twisted pair, about 100 yards of it.

I split enough of twisted pair to drop down the vent shaft and tied a knot.
Split the rest into a doublet.

Amazingly enough the RF managed to get past the knot and get me lots
of world wide contacts. All over from JA to USA. RSA to LA too.

The motto: if all else fails: cheat!

Dick G0BPS / 9H3JX
G-QRP Club SSB Manager
Vice President QRP-ARCI,

dick@trickie.com or g0bps@gqrp.com

Date: Wed, 24 Jul 2002 19:50:43 +0000

From: "Leon Heller" <leon_heller@hotmail.com>
To: tracy@bytemark.com, qrp-1@lehigh.edu
Subject: [130567] Re: Suggest a core ?
Message-ID: <F133YNY9kFr5er64ils00019784@hotmail.com>
Mime-Version: 1.0
Content-Type: text/plain; format=flowed

>From: "Tracy Markham" <tracy@bytemark.com>
>Reply-To: tracy@bytemark.com
>To: "Low Power Amateur Radio Discussion" <qrp-1@Lehigh.EDU>
>Subject: Suggest a core ?
>Date: Wed, 24 Jul 2002 11:36:56 -0700
>
>I found, I think from a suggestion on this list, a great site of simple
>circuits. One has a 2N5109 for a nice receiver preamp. It doesn't specify
>the core; think something in line with a F37-43 or F50-43 would work?
>
><http://www.qsl.net/yo5ofh/projects/wbhoiplna.gif>
>
>this fellow has a lot of good schematics.
>
>Tracy N4LGH

I've used 43 material cores in this type of amplifier. It's a Norton amplifier; the inductive feedback reduces the noise level, compared to the usual resistive feedback used in wideband amps.

73, Leon

--

Leon Heller, G1HSM Tel: +44 1327 359058 Email:leon_heller@hotmail.com
My web page: http://www.geocities.com/leon_heller
My low-cost Altera Flex design kit: <http://www.leonheller.com>

MSN Photos is the easiest way to share and print your photos:
<http://photos.msn.com/support/worldwide.aspx>

Date: Wed, 24 Jul 2002 16:20:48 -0400
From: Steven Weber <kd1jv@moose.ncia.net>
To: qrp-1@lehigh.edu

Subject: [130568] Re: Conjugate Matching Demonstration
Message-ID: <3.0.6.32.20020724162048.007a2850@mailhost.ncia.net>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Karl,

>

> The short result is that I had a transmitter making 10 watts and
>a load that was 19 ohms in series with 910 pf, and a Tee type tuner.
>With the load attached direct to the tuner I got 4 watts into the
>resistor.

If you are measuring the power across just the resistor, then you are not measuring the total power into the load. Your total load is 19-j50, as I believe you said your doing the test at 3.5 MHz and a 910 p cap has 50 ohm reactance at 3.5 MHz. You need to measure the voltage across the total load, then divide the total load reactance AND take into account the current phase shift due to the capacitor.

If 4 watts is being dissipated by the resistor, about 6 watts has to be dissipated in the capacitor. Key down for a couple of minutes, then touch the cap. I bet you'll find it's quite warm.

>

> When I put 200 feet of coax on the output of the tuner and the
>load at the other end, I got 6 watts of power into the resistor.

>

> Since the coax has 0.7 DB of loss, the whole 10 watts were not
>available at the load. But the test proves the feed line can INCREASE
>the power into the load (antenna).

>

If you see more power at the load than you put into it, than either you live in a different universe than the rest of us, or your measurements are flawed!

72,

Steve, KD1JV

"Melt Solder"

White Mountains of New Hampshire

<http://www.qsl.net/kd1jv/>

Date: Wed, 24 Jul 2002 13:16:38 -0700 (PDT)

From: Jeff <fantbb@yahoo.com>

To: qrp qrp <qrp-l@lehigh.edu>

Subject: [130569] When is BUBBA?

Message-ID: <20020724201638.31528.qmail@web20418.mail.yahoo.com>

MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii

I've got my sun screen ready and cooler full of ice! So when is BUBBA
this year? 8-)

Jeff

=====

AB6MB
NorCal QRP Club #65, QRP-L #1780, ARCI 10071
Radical FIST Member 6798, Fanatic A's fan #1

Do You Yahoo!?
Yahoo! Health - Feel better, live better
<http://health.yahoo.com>

Date: Wed, 24 Jul 2002 14:27:49 -0600 (MDT)
From: "Karl F. Larsen" <k5di@zianet.com>
To: Nick Kennedy <nkennedy@tcainternet.com>
Cc: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130570] RE: Conjugate Matching - What Happens in the Transmitter?
Message-ID: <Pine.LNX.4.44.0207241145170.10109-1000000@Daisy.dog>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Tue, 23 Jul 2002, Nick Kennedy wrote:

> Nice post, Doc. I want to comment and then get off on yet another
> counter-conjugate match rant. Nurse, stand by with those sedatives.
>
> -----Original Message-----
> From: James R. Duffey [SMTP:jamesd1@flash.net]
>
>
> "The matching network is a 4 terminal network connected between the tuner
> and
> the active device, so from the conjugate match theorem, there is a
> conjugate
> match at transmitter output and at the active device/matching network
> interface. What is the impedance that is being matched at the input to the
> output network of the transmitter? That is the load impedance of the active
> device, sometimes called the dynamic load impedance. For transistor finals,
> this dynamic load impedance is $(V_{collector})^2 / 2 * P_{out}$. For a 5 watt QRP rig
> at 12 V, this is $144 / 10 = 14.4$ Ohms."

>
> "Now, this is the source resistance that is conjugate matched."
>
> Hmmm ...

No problem here I can see except that on almost all solid state amps there is a transformer that gets the 14 ohms up to near 50 ohms. I measured the impedance of my tuner input after tuning up my 100 watt radio TS-50 on 20 meters. The reading was $58 + j0$.

>
> "Consider two measurements, both of which support this claim. Disconnect
> the
> final device. Replace it with a resistor that has the same value as the
> load
> impedance quoted above. Measure the output impedance with a bridge. You
> will
> measure 50 Ohms. This affirms the conjugate match. As an aside, this is
> one
> method of optimizing the output network filter. Replace the final with the
> load impedance. Put an antenna analyzer at the output. Adjust the network
> until the analyzer reads 50 Ohms. This technique is in Solid State Design.
>

I can see exactly how this works.

> become necessary to say this, but ... I'm not attacking anyone, I'm not mad
> at anyone, I'm not offended that anyone disagrees with me, and no, I don't
> think I know it all. (Far from it.) Am I upset that Doc, George, and
> Bill--three smart guys--all disagree with me? Not a bit. This is supposed
> to be fun.

And Nick no-one is upset with you either. I don't buy anything whole cloth without something to verify the theory. Yesterday I verified the theory with a careful test using a stable RF source tuner feed line and load. The CM theory proports to answer the results.

> About theories--When asked if scientific theories represented some kind of
> absolute truth, Stephen Hawking came up with a great commonsense answer
> something like this: A theory allows us to predict some kind of physical
> behavior. If observations agree with the theory to a high degree of
> accuracy, we call it a good theory. Combine that with Ockham's razor and
> you'll see why the CM thing doesn't do it for me.

I agree with Stephan Hawking in his wheel chair...the CM theory is proven to some degree by math, and it's effect has been demonstated

in use and in at least my own test.

There does remain the possibility that some other theory will answer the effect we see.

The CM theory says if in a network with a source, a tuner, a long feed line and an antenna has a CM at any junction there is a CM at every junction. Also at every junction the reactive component will be zero. Some say since the reactive component is zero that everything is in resonance.

I have a problem with the resonance part. In a tuned circuit with an L and C is resonant when $X(L) = X(C)$. I don't see how that applies to a feed line.

--

Yours Truly,

- Karl F. Larsen, (505) 524-3303 -

Date: Wed, 24 Jul 2002 14:33:52 -0600 (MDT)
From: "Karl F. Larsen" <k5di@zianet.com>
To: qrp-l@lehigh.edu
Subject: [130571] FOX Goodie
Message-ID: <Pine.LNX.4.44.0207241427540.10767-1000000@Daisy.dog>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

If the sun doesn't turn off 20 meters thursday next the chances of working both Foxie from my Camp at Fort Tuthill, AZ are good. I will be running a full QRP killwat to my W3FF rotating dipole up 12 feet. Both Jim and Paul listen for QSL UR 559 AZ KARL 5W BT...

I will be illuminated by a 2 mantle coleman stove with a one burner backpack stove making hot coffee.

--

Yours Truly,

- Karl F. Larsen, (505) 524-3303 -

Date: Wed, 24 Jul 2002 13:34:20 -0700 (PDT)
From: Wayne AA5JJ <aa5jj@yahoo.com>
To: Charlie Calhoun <charlie.calhoun@home.com>,
Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130572] Still looking for a 1K60
Message-ID: <20020724203420.42507.qmail@web10503.mail.yahoo.com>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii

I have found the diode 1K60 but the shipping for just one is 2.50 does anyone have a few of these laying around in their junk box, I will gladly pay for them and shaping I just hate to pay 2.50 for a .19 Cent idem.

Thanks
Wayne AA5JJ

Do You Yahoo!?
Yahoo! Health - Feel better, live better
<http://health.yahoo.com>

Date: Wed, 24 Jul 2002 14:32:51 -0600 (CST)
From: Bruce Rattray <rattray@gpfn.sk.ca>
To: QRP-Canada <qrp-canada@neale.gpfn.sk.ca>,
Low Power Group <qrp-l@lehigh.edu>
Subject: [130573] Fox - Summer Hunt Teams Results.
Message-ID: <Pine.LNX.4.33.0207241425110.2707-100000@neale.gpfn.sk.ca>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

I missed WE9K in the last hunt so the Cheeseheads have 20 pts and a Clean Sweep for hunt #4.

Hunt #5 - K0FRP -

The NE-TX Tornados - 15

The Raiders of the Lost RF - 18

orge - W5YR *
Doc - W5TB *
Eric - NM5M *
Don - K5DW *
Mike - KD5KXF

Rob - VE6JAZ
Dan - VE6EX *
Fred = VE3FAL *
Earl - VA6RF *
Bruce - VE5RC/W7 *

The Piggie Team - 9

Jim - KJ0C *
Dave - WR50
Randy - W9HL *
Wayne - K9DI
Diz - W8DIZ

The Cheeseheads - 20

Craig - VE4WI *
Jim - WA9TZE *
Glenn - WE9K * Clean
Lon - W9XU * Sweep
Rick - NK9G *

The Cajun Thunder - 12

Wayne - K5EOA *
Jim - N5IB *
Vern - AA50
Wayne - N5YFC
Tom - AC5JH

The Swamp Rats - 15

ET - N1FN *
Doc - K0EVZ
Paul - K4FB *
Dennis - N4DD *
Tom - N1TP

The p-Shooters - 11 (Low Power Team)

Jason - K0IIN What power are you fellows running byw?
Gary - NQ7T
Jim - KC1FB
Tony - KB9YIG *
Todd - N9NE *

...as always, please send me corrections...thank you...

..72/73 - Bruce (VE5RC+VE5QRP) QRP-C#1 QRP-L#886 ARCI#9683 Zombie#272
A-1 Operator Club - 10/10# 944 - QRP Borg#1 - Whiner#10 -
- VE5QRP SOC#11 - VE5RC SOC#12 - oo#148 - K2#2032 - COG#15 -
"QRP! How sweet it is!" "I am da man wit "DAH" paddle!"

Date: Wed, 24 Jul 2002 13:34:29 -0700
From: Trevor Jacobs <kg6cyn@earthlink.net>
To: k5di@zianet.com
Cc: Low Power Amateur Radio Discussion <qrp-1@lehigh.edu>
Subject: [130574] Re: FOX Goodie
Message-ID: <Springmail.0994.1027542869.0.75295500@webmail.pas.earthlink.net>

Boy I sure wish I could join you and the rest of the guys at Ft. Tuthill this year. Would have been fun. Let us know when you are going to be on the air, and we'll listen for you...

73's Trev KG6CYN

On Wed, 24 Jul 2002 14:33:52 -0600 (MDT) "Karl F. Larsen" <k5di@zianet.com> wrote:

If the sun doesn't turn off 20 meters thursday next the chances of working both Foxie from my Camp at Fort Tuthill, AZ are good. I will be running a full QRP killwat to my W3FF rotating dipole up 12 feet. Both Jim and Paul listen for QSL UR 559 AZ KARL 5W BT...

I will be illuminated by a 2 mantle coleman stove with a one burner backpack stove making hot coffee.

--
Yours Truly,

- Karl F. Larsen, (505) 524-3303 -

Date: Wed, 24 Jul 2002 14:03:32 -0700
From: Mighty Mik <mightymik2@attbi.com>
To: "Low Power Amateur Radio Discussion" <qrp-1@lehigh.edu>
Subject: [130575] RE: Metric Time?
Message-ID: <5.1.0.14.0.20020724140050.00b306c8@mail.attbi.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Blame the French. They invented metric time.

At 02:56 PM 7/24/2002 -0400, you wrote:

>I'm not sure about "metric" time, but I recently read about another
>interesting attempt by the Swiss company, Swatch, to create a new time
>standard called "Internet Time". Based on 1,000 "beats" a day each unit
>of time is about 1 minute, 26 seconds. More can be found of this goofy
>idea at...

>

> http://www.swatch.com/itime_tools/itime.php?color=black&textcolor=white

>

>Apparently, they sell some watches that keep this time!?!@!@!

>

>Steve

>aa8af

>

>

>

>

>Karl Kanalz <kkanalz@gcecis.com>

>Sent by: owner-qrp-1@Lehigh.EDU

>07/24/2002 02:26 PM

>Please respond to kkanalz

>

>

> To: "Low Power Amateur Radio Discussion" <qrp-1@Lehigh.EDU>

> cc:

> Subject: RE: Metric Time?

>

>

>Oh no, Bruce! Don't tell me that they've gone and "metricized" *time*
>now!

>

>You wrote:

>

>-----Original Message-----

>From: Bruce Rattray [SMTP:rattray@gpfn.sk.ca]

>Sent: Wednesday, July 24, 2002 10:05 AM

>To: Low Power Amateur Radio Discussion

>Subject: Re: A little story...or QRP fun!

>

><snip>

>..Bonnie and I have a small conversion slider chart for converting from
>metric to Imperial for cooking times, liquids, etc...<snip>

Date: Wed, 24 Jul 2002 15:08:18 -0600 (CST)
From: Bruce Rattray <rattray@gpfn.sk.ca>
To: QRP-Canada <qrp-canada@neale.gpfn.sk.ca>,
Low Power Group <qrp-l@lehigh.edu>
Subject: [130576] Fox - Summer Hunt Teams Results.
Message-ID: <Pine.LNX.4.33.0207241502340.5699-1000000@neale.gpfn.sk.ca>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hunt #6 - N3BJ -

The NE-TX Tornados - 20

orge - W5YR *
Doc - W5TB * Clean
Eric - NM5M * Sweep
Don - K5DW *
Mike - KD5KXF

The Raiders of the Lost RF - 22

Rob - VE6JAZ
Dan - VE6EX *
Fred = VE3FAL *
Earl - VA6RF *
Bruce - VE5RC/W7 *

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Jim - KJ0C *
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Randy - W9HL *
Wayne - K9DI
Diz - W8DIZ

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The Cajun Thunder - 15

Wayne - K5E0A *
Jim - N5IB *
Vern - AA50 *
Wayne - N5YFC
Tom - AC5JH

The Swamp Rats - 18

ET - N1FN *
Doc - K0EVZ
Paul - K4FB *
Dennis - N4DD *
Tom - N1TP

The p-Shooters - 12 (Low Power Team)

Jason - K0IIN What power are you fellows running byw?
Gary - NQ7T
Jim - KC1FB
Tony - KB9YIG

Todd - N9NE *

...please let me know about any errors, corrections or omissions...tnx..

..72/73 - Bruce (VE5RC+VE5QRP) QRP-C#1 QRP-L#886 ARCI#9683 Zombie#272
A-1 Operator Club - 10/10# 944 - QRP Borg#1 - Whiner#10 -
- VE5QRP SOC#11 - VE5RC SOC#12 - oo#148 - K2#2032 - COG#15 -
"QRP! How sweet it is!" "I am da man wit "DAH" paddle!"

Date: Wed, 24 Jul 2002 14:19:47 -0700 (PDT)
From: Claude <mck20@yahoo.com>
To: qrp-l@lehigh.edu
Subject: [130577] Re: Still looking for a 1K60
Message-ID: <20020724211947.38899.qmail@web11603.mail.yahoo.com>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii

Wayne,

I don't have a 1K60 but here is some information
on it.... The NTE# is NTE110A
The ECG# is 110AECG
The SK# is SK3088
The Mouser part number is 526-NTE110A their
computer shows they have 23 in stock and 1,146 on
order... They show a price of \$1.18 each but you have
the shipping problem.... Their web site is
<http://www.mouser.com> I would still look around
though, I would think someone would have one.... Hope
this helps.... Claude WB4WHH

--- Wayne AA5JJ <aa5jj@yahoo.com> wrote:
> I have found the diode 1K60 but the shipping for
> just

> one is 2.50 does anyone have a few of these laying
> around in their junk box, I will gladly pay for them
> and shaping I just hate to pay 2.50 for a .19 Cent
> idem.
>
> Thanks
> Wayne AA5JJ
>
> -----
> Do You Yahoo!?
> Yahoo! Health - Feel better, live better
> <http://health.yahoo.com>

Do You Yahoo!?
Yahoo! Health - Feel better, live better
<http://health.yahoo.com>

Date: Wed, 24 Jul 2002 17:33:40 -0400
From: "Ronald Davis" <RDavis24@carolina.rr.com>
To: "QRP-L" <qrp-l@lehigh.edu>
Subject: [130578] QRP paddle kit question?
Message-ID: <003501c23359\$c71cbb10\$a13e4a18@your318ruqz03z>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Hello again

I remember seeing a paddle kit in a QRP magazine awhile back, and I can not find it now, and I was hoping someone on the list could help out? I remember it as a copper clad board kit, and keyer built in an Altoids tin? I am wanting to build one of these to go with the my portable rigs but do not know where I saw it? If anyone can help me with the article, or if anyone has an unbuilt kit that they want to sell, please contact me.

Thanks

Ronnie

KE4VPN

"A Wanna Be CW Operator"

Date: Wed, 24 Jul 2002 14:49:02 -0700
From: "Bob Hightower" <nk7m@extremezone.com>

To: <fantbb@yahoo.com>
Cc: "qrp" <qrp-1@lehigh.edu>
Subject: [130579] Re: When is BUBBA?
Message-ID: <000b01c2335b\$ed71e4a0\$734998d0@bobscomputer>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

BUBBA is scheduled for August 24th. Will get a page up after Tuthill,
hopefully.

Bob NK7M

Date: Wed, 24 Jul 2002 18:04:57 -0400
From: "carl seyersdahl" <carlseye@tampabay.rr.com>
To: <mck20@yahoo.com>,
 "Low Power Amateur Radio Discussion" <qrp-1@lehigh.edu>
Subject: [130580] Re: Still looking for a 1K60
Message-ID: <006d01c2335e\$26238680\$d2af2341@tampabay.rr.com>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

According to my book the ecg110 is the same as a 1N34A, germanium diode,
available at any radio shack outlet!!!

carl / kz5ca

----- Original Message -----
From: "Claude" <mck20@yahoo.com>
To: "Low Power Amateur Radio Discussion" <qrp-1@Lehigh.EDU>
Sent: Wednesday, July 24, 2002 5:19 PM
Subject: Re: Still looking for a 1K60

> Wayne,
> I don't have a 1K60 but here is some information
> on it.... The NTE# is NTE110A
> The ECG# is 110AECG
> The SK# is SK3088
> The Mouser part number is 526-NTE110A their
> computer shows they have 23 in stock and 1,146 on
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> <http://www.mouser.com> I would still look around
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> --- Wayne AA5JJ <aa5jj@yahoo.com> wrote:
> > I have found the diode 1K60 but the shipping for
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> >
> > Thanks
> > Wayne AA5JJ
> >
> > -----
> > Do You Yahoo!?
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>
>
> -----
> Do You Yahoo!?
> Yahoo! Health - Feel better, live better
> <http://health.yahoo.com>
>

Date: Wed, 24 Jul 2002 16:38:23 -0500
From: "George, W5YR" <w5yr@att.net>
To: "Karl F. Larsen" <k5di@zianet.com>
Cc: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130581] Another View of Conjugate Matching - without the math! (long)
Message-ID: <3D3F1E4F.FF1008DD@att.net>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Karl, I have already responded privately re your experimental results. I believe that your results can be explained by the transformer action of the longer cable. I do not believe that its loss had much to do with the situation; its electrical length was the key factor. Interesting experiment . . .

The "derivation" of part of the CM theory which Karl has requested to see

is only really a "thought experiment" which illustrates the point without any math at all. Again I am telling you how to make a clock when you have asked for the time. But there are a lot of "gotchas" about this business and I want to make sure to cover enough of the bases to keep out of trouble! <:}

Consider that you have a power source with a complex internal impedance. You connect this source to a network that contains the proper R, L and C to load the source for Maximum Power Transfer. It is then, by definition, conjugately matched, or CM for short, and maximum power from the source is delivered to the resistance where it is dissipated as heat. This is the usual illustration of CM of a source with a complex source impedance for Maximum Power Transfer to a load. As the usual development of this Theorem finds, the efficiency of the source/load system under these conditions is 50% since half the power is dissipated in the load and half in the internal or source resistance component.

Now, let's extend the architecture a little . . .

Consider that we connect a second network to the output of the first and move the resistance from the first network to the second. Now we have a larger network containing L and C and R. Provided that the R, L and C are chosen in both networks to CM the source as was done with the first network alone, we still have maximum power passing from the source into and through the first network into the second and being dissipated in the resistor there.

The actual resistance value may not be the same as was used in the first network, but the L and C values can be chosen to simultaneously transform the actual R to whatever R the source termination requires and to provide the net reactance required as the conjugate of the source reactance.

Connecting the second network after the first network, which now contains L and C only (and thus cannot consume any power) means that all of the power entering the second network must be passed to its R. And this is exactly the same power as was taken from the source and dissipated in the R when it was in the first and only network. Thus, a CM must now exist between the source and the input of the first network, and between the output of the first network and the input of the second network. No other conditions would allow maximum power to be taken from the source and dissipated in the resistance.

If a third network containing L and C and a load R is connected to the output of the second network, from which its R has been removed, then all the power which enters the second network will leave unchanged and enter the third network where it will be dissipated in the R in that network. Each network will alter the voltage and current levels and phases according to the L and C values and the topology of the network, but no power can be

consumed so it must all appear at the R in that last network. L and C values among all three networks must now be adjusted to (a) transform the actual R in Network 3 to that required by the source for CM and (b) provide the net reactance required to cancel the reactive component of the source impedance.

You can see the pattern here: adding more and more lossless L and C networks in the cascade, and moving the load R to the last one, does nothing to alter the fact that all the power taken from the source passes through the cascade of networks undiminished to some ultimate load where the power is dissipated.

Thus, the conclusion must be that since the power entering and leaving any one network is unchanged, then a CM must exist at the junctions of all the networks. Each network is CM to the one feeding it and to the one it feeds. This CM at all the junctions results from the CM achieved in whatever network or group of networks accomplishes the impedance transformations of the load R and provides the required conjugate reactance.

With a single network containing the load R, the CM was accomplished there. With the addition of the second network now containing the load R, the combination can again CM the source if we select the L and C values collectively to transform the actual R and provide the conjugate reactance required to CM the source. And so on . . .

To summarize this line of thought, if we consider the cascade of networks to actually be one big network, we find that if we adjust the L and/or the C in *any* or part or all of the individual networks to obtain maximum power transfer from the source, to a load resistance anywhere in the network of networks, then a CM must exist at the junctions between each of the constituent networks.

This must be true since there is nowhere else for the power to be dissipated and Conservation of Energy requires that all the power taken from the source - all it can deliver in this special case - must be dissipated within the system of networks loading the source. If the load R is at the "tail end" of the cascade then the total source power must pass undiminished through the cascade to the load R. That can happen only if a CM exists at the junction of each pair of networks. Since there is nothing unique to determine an "input" or "output" terminal-pair for a linear, passive, bilateral network, we can always redefine any LCR system as a collection of cascaded two-terminal-pair networks. More basic network theory . . .

Note that ALL of the networks can be lossless as long as there is *one* resistance somewhere in the system to accept and use the power. Also note that whatever the actual value of that resistance may be, it can be transformed to the value required for CM of the source.

Now, we can label these three networks in our thought experiment as the tuner, the feedline and the antenna. The conclusion about the effect of CMing the source remains the same. In this case, the actual load resistance is in the third network: the real part of the antenna impedance. We accomplish the source CM by adjusting the first network L and C values. Collectively, the tuner, feedline and antenna (load) are CM to the source, and each is CM to the other at each junction.

Note that the first network is the site of adjustment solely for convenience. Adjustments could be made in any or all of the three networks. The net effect of all L and C components - lumped or distributed, as in the feedline - is involved in achieving the source CM. Change any one network and compensating changes can be made elsewhere.

An exception to this statement might be that changes in the amplifier may or may not require any network changes. Because a 50 ohm resistive load has become a universal standard, substituting one amplifier for another seldom requires much if any in the way of tuner adjustment changes, etc.

Also, keep in mind the "directionality" of this system. Power is taken "from" the amplifier and delivered "to" the antenna. But the operation of the system in matching the source involves starting with the real part of the antenna impedance and working back toward the transmitter making the adjustments required to present the amplifier with a 50 ohm load.

Some use the concept that the tuner is adjusted to somehow "match" the "output impedance" of the amplifier to the antenna system. I find that this is a difficult concept to use. First, recall that everything that is done in the antenna system is done *without regard* to the transmitter itself. Everything we do with our antenna adjustments, feedline length and Z_0 choices and our tuner settings is aimed solely at providing the transmitter with a 50-ohm resistive load.

We have no knowledge of what is in the transmitter nor do we need to have in order to ensure that we are loading it properly. The standard 50-ohm load requirement takes care of that. So, once we achieve a 1:1 SWR in the 50-ohm coax to the amp, we have met our CM requirement

However, the function of the tuner to re-reflect the backward wave does require that the transmitter present to the input terminals of the tuner a 50 ohm termination. This requirement is met by the provision of internal networks in the amplifier that transform the actual device load resistance to the nominal 50 ohms of the output port. Thus, our efforts in designing and adjusting the antenna system can proceed without detailed knowledge of the amplifier internal operation.

Now, let's look at another aspect of the source that enters into all this .

. .

When the source is an r-f amplifier instead of an idealized a-c source of some sort, we encounter the real-world limitation on how much power we are permitted to take from the source as compared with the most that it can deliver. Seldom will a linear amplifier operating at its maximum power output provide acceptable distortion performance, so we must back off and operate at a lower power level where the linearity is acceptable.

We find that the amp designer has taken this into account by enabling us to provide a convenient 50 ohm resistance as a load - the antenna real part transformed by the network - and then providing additional networks within the amp which transform the real 50 ohm load to whatever load the amp devices require in order to operate at a power level that meets specifications on efficiency, heat dissipation, linearity (distortion generation), etc.

Typically, this load resistance differs from that which would extract maximum possible power from the amplifier so it is termed the Optimum Load Resistance and the power it extracts is termed the Maximum Available Power. Because of the internal networks we can regard 50 ohms as the Optimum Load Resistance and conveniently use 50-ohm coax to the amplifier. We adjust the tuner for 1:1 SWR in that coax line to the amplifier and, according to the notion of CM, we have provided the amplifier with the load it requires to deliver NOT maximum power, but the highest level of power that it can produce.

This degree of loading provides a major advantage over Maximum Power Transfer loading: we are no longer mathematically bound to a maximum efficiency of 50%. We know from experience and theory that our amplifiers can deliver considerably better than 50% efficiency when "properly" loaded, driven, etc.

The burning question at this point is whether or not we have "actually" CM the source. Some say "yes" others say "no" and most of us just say "???". Truthfully, this remains a moot point with most engineers from what I can find out. Maxwell takes the view that what we are matching is "close enough" to matching the "actual" source impedance to not invalidate the application of CM theory to the system. I agree with that viewpoint, since the practical consequence of failing to make an exact CM would be only to extract a correspondingly smaller amount of power. The remainder of the system performs precisely as CM theory predicts.

The 50% efficiency condition that accompanies Maximum Power Transfer, however, argues to the contrary: if we have achieved more than 50% efficiency then by definition we have not provided CM of the source. This is one of those irritating issues which continues to muddy the waters in discussions of whether we do or do not CM an amp. Again, my viewpoint is

that this is philosophical and that as engineers we are more concerned with efficient operation of the amp than with adhering to a theoretical load which we probably do not know how to provide since we do not know what it is. This situation is a lot like the issue of loading of a power plant. It should be loaded for Maximum Power Transfer, right, to get the most power out? No, to do so would waste half the power in the system. Such loading is rarely encountered in the real world since there are usually enough conflicting requirements to make it unsuitable.

We can conclude that we have established a CM from the antenna all the way to the active devices *IF* the actual internal load resistance as transformed and seen by the devices is their true source resistance. This part of the story remains vague since no one seems able to prove or derive the *actual* source impedance of an amplifier. The approximation that Jim presented is widely used, at least as a starting point for amplifier design, and it is probably close enough. But, I have not seen any analysis that *proves* that this is in fact the actual source impedance. The fact that professional amp designers evidently do not make use of source impedance values in the design process leads one to suspect that whatever optimum load is finally determined for Maximum Available Power actually is NOT the true source impedance. But, that is another matter . . .

So, this aspect of the discussion is one of philosophy rather than system engineering. Arguments that we may or may not be exactly matching the source impedance tend to take on the qualities of debates regarding the number of angels that may dance upon the head of a pin. And they are likely to remain so until someone provides the authoritative definition of an amplifier source impedance and shows how to determine its value.

Let's consider the tasks that the tuner is required to accomplish and relate those to the requirement of knowing the actual source impedance; maybe we can see where the lack of this information is harmful:

1. transform the real part of the antenna impedance, as modified by the feedline, to the required real load resistance of 50 ohms specified by the amp designer.
2. provide the necessary impedance, voltage and phase relationships *within the tuner* to cause a total re-reflection of the backward traveling wave from the antenna and thus prevent it from proceeding through the tuner into the amplifier.

The first task is straightforward and evidently can be done with no detailed knowledge of the amplifier circuitry or operating conditions. We do whatever it takes with the antenna system to provide a 50 ohm resistive load for the transmitter and that satisfies the requirement for delivery of Maximum Available Power. We verify this condition by adjusting for a 1:1 SWR in the coax to the amplifier.

The second task is less sanitary, however. Here it becomes a requirement that the tuner look into the coax to the amp and "see" $50+j0$ at the line input terminals if the backward wave is to be re-reflected. This requirement is met generally by the design of amplifiers including internal networks which transform the actual device load resistance to the nominal Optimum Load Resistance of 50 ohms. The impedance then looking back into the amplifier output port through the intervening 50-ohm coax should be 50 ohms when the amplifier is delivering Maximum Available Power. Thus, we require that the transmitter be connected and operating in order for the tuner to handle the second task.

This way of viewing CM is taken from "Electric Transmission Lines" by H.H. Skilling, pp 195-6. That was the text for my first transmission lines course in undergrad school. Some idea of its age - and mine! - can be obtained by noting that the price of the book new at the bookstore was \$7.00!

Skilling is still an excellent reference and can probably be found in Half Price bookstores and the like for a song. Apart from t-lines, the text includes material on generalized network theory for review purposes. It was published in 1951 by McGraw-Hill.

The very best reference I have for transmission lines is "Theory and Problems of Transmission Lines" by R.A Chipman, published in the Schaum's Outline Series by McGraw-Hill in 1968. Chipman is highly regarded among professional r-f engineers. It is highly detailed and thorough, but is also highly mathematical.

I suspect that the list has grown very tired of this thread and topic, so if anyone is interested in discussing it further, I suggest that we retire to private emails.

73/72/00, George W5YR - the Yellow Rose of Texas
Fairview, TX 30 mi NE of Dallas in Collin county EM13qe
Amateur Radio W5YR, in the 56th year and it just keeps getting better!
QRP-L 1373 NETXQRP 6 SOC 262 COG 8 FPQRP 404 TEN-X 11771 I-LINK 11735
Icom IC-756PRO #02121 Kachina 505 DSP #91900556 Icom IC-765 #02437

"Karl F. Larsen" wrote:

> Hi George, I'm getting the old writing that Walt Maxwell said
> was the definitive description of CM. But would like to see what you
> have. Yesterday in an experiment I proved CM or something works. See my
> messages on the list.

Date: Wed, 24 Jul 2002 16:18:41 -0600 (CST)
From: Bruce Rattray <rattray@gpfn.sk.ca>
To: QRP-Canada <qrp-canada@neale.gpfn.sk.ca>,
Low Power Group <qrp-l@lehigh.edu>
Subject: [130582] MFJ Model 401C Econo Keyer II
Message-ID: <Pine.LNX.4.33.0207241615470.11887-1000000@neale.gpfn.sk.ca>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Picked up one of these at the Glacier hamfest flea market...works fine...
went to the MFJ Manual web site and no manual...can anyone send me a
manual via e-mail please?...or however...

..72/73 - Bruce (VE5RC+VE5QRP) QRP-C#1 QRP-L#886 ARCI#9683 Zombie#272
A-1 Operator Club - 10/10# 944 - QRP Borg#1 - Whiner#10 -
- VE5QRP SOC#11 - VE5RC SOC#12 - oo#148 - K2#2032 - COG#15 -
"QRP! How sweet it is!" "I am da man wit "DAH" paddle!"

Date: Wed, 24 Jul 2002 18:26:11 -0400
From: Bill Coleman <aa4lr@arrl.net>
To: <k5di@zianet.com>,
"Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130583] RE: Conjugate Matching - What Happens in the Transmitter?
Message-ID: <20020724222744.EMYF1218.imf13bis.bellsouth.net@[192.168.0.20]>
Mime-Version: 1.0
Content-Type: text/plain; charset="US-ASCII"

On 7/24/02 4:27 PM, Karl F. Larsen at k5di@zianet.com wrote:

> And Nick no-one is upset with you either. I don't buy anything
> whole cloth without something to verify the theory. Yesterday I verified
> the theory with a careful test using a stable RF source tuner feed line
> and load. The CM theory propoerts to answer the results.

Gosh, Karl, and just last week you were claiming that there was no such
thing as conjugate matching. This week you're it's most staunch advocate?

What's on the schedule for next week?

> I agree with Stephan Hawking in his wheel chair...the CM theory

>is proven to some degree by math, and it's effect has been demonstated
>in use and in at least my own test.

What does math have to do with it? A lot of good math gets thrown out the window whenever an well-designed and executed experiment creates results that are inconsistant with theory.

> The CM theory says if in a network with a source, a tuner, a
>long feed line and an antenna has a CM at any junction there is a CM at
>every junction. Also at every junction the reactive component will be
>zero. Some say since the reactive component is zero that everything is
>in resonance.

Duh! The lack of a reactive component is the DEFINITION of resonance, Karl.

> I have a problem with the resonance part. In a tuned circuit
>with an L and C is resonant when $X(L) = X(C)$.

Not correct, Karl. L and C are resonant at a frequency f where

$\text{abs}(X(L)) = \text{abs}(X(C))$

>I don't see how that applies to a feed line.

Basic Math, Karl. The sign of the $X(C)$ is negative (because the current lags voltage), whereas $X(L)$ is positive (because current leads voltage). Therefore: $X(L) - X(C) = 0$.

Bill Coleman, AA4LR, PP-ASEL Mail: aa4lr@arrl.net
Quote: "Not within a thousand years will man ever fly!"
 -- Wilbur Wright, 1901

Date: Wed, 24 Jul 2002 15:30:31 -0700
From: "Ian Wilson" <ianmwilson@earthlink.net>
To: <RDavis24@carolina.rr.com>,
 "Low Power Amateur Radio Discussion" <qrp-l@lehigh.edu>
Subject: [130584] Re: QRP paddle kit question?
Message-ID: <00a001c23361\$b8c72b60\$0b02a8c0@trabucoserver>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

This may be it (look under Contstruction Projects, light weight paddle, etc): <http://www.qsl.net/kd1jv/>.

72,

--ian

Date: Wed, 24 Jul 2002 18:47:39 -0400
From: "Mark J. Dulcey" <mark@buttery.org>
To: kkanalz@gcecispc.com
Cc: Low Power Amateur Radio Discussion <qrp-l@lehigh.edu>
Subject: [130585] Re: Metric Time?
Message-ID: <3D3F2E8B.1080304@buttery.org>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii; format=flowed
Content-Transfer-Encoding: 7bit

Karl Kanalz wrote:

> Oh no, Bruce! Don't tell me that they've gone and "metricized" *time* now!

When the metric system was invented, there was a proposal for metric time: 10 hours per day, 100 minutes per hour, and 100 seconds per minute. It was never adopted anywhere; replacing all the clocks was simply too daunting and expensive a task to consider.

End of QRP-L Digest 2626

